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AN INTRODUCTION

TO

SYSTEMATIC PHILOSOPHY

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AN INTRODUCTION

TO

SYSTEMATIC PHILOSOPHY

BY

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TO

The Three Teachers

TO WHOSE INSTRUCTION AND GUIDANCE
I OWE MY FIRST KNOWLEDGE OF PHILOSOPHY
NICHOLAS MURRAY BUTLER
BENNO ERDMANN
JAMES HERVEY HYSLOP
THIS BOOK
IS GRATEFULLY DEDICATED

PREFACE

THERE are two things that this book is not. First, it is not an historical introduction to philosophy. I have dealt only in a few cases with the history of the problems under consideration, but have generally given only brief notes and a few references to guide the student should he desire to devote some time to looking up historical matters. Secondly, it is not a handbook of philosophy. It does not give *pro* and *con* all the various doctrines held by the great philosophical writers of the past and the leading writers of the present. It does not give an exhaustive bibliography under the different headings, but mentions as a rule only those books with whose titles the beginner should get acquainted and in which he will find the best introduction to a further and profounder treatment of the problem in hand.

But what is the book? It is an attempt to state and explain the chief problems of philosophy as problems actually existing to-day, and to give such solution of these as the author is able to give. In fact, its chief value seems to me to lie in the selection and in the order of the problems with which it deals. The instructor who uses the book for his classes may easily select those chapters which he wishes to omit and those which he desires to emphasize. I strongly urge the beginner and the general reader to omit for the first reading the following chapters: V, VII, X, XII, XIII, XX, XXX, XXXI, XXXIII, XLV, XLVI, XLVII, LVII, and LVIII. By so doing the book will gain in interest and the main argument will not be seriously disturbed.

I am quite aware that the book has many faults, but my excuse for publishing it now is, first, the belief that it is an approach toward what an introduction to philosophy should be, and, secondly, the desire to learn through it how to write a better introduction some time in the future, especially in case a second edition is called for. Doubtless, the reader will find inconsistencies; but inconsistency between the solutions of different problems does not seem to me a fatal fault, for I believe that we philosophers should profit by following the example of natural science and devoting ourselves chiefly to separate problems and their solution, even if we have to set aside for the time being the making of a system. Hence I have tried to present a series of problems and their solutions rather than a completed philosophical system. In this presentation there is, of course, a system, or general doctrine, in the background, and a word should be said about it.

If I have understood Professor Münsterberg aright in the first chapter of his "Psychology and Life," I agree with every statement that he there makes. My terminology is different, but my general views are the same. I should call the main doctrine of my book a rationalistic idealism. By idealism I mean the doctrine that denies the existence of a transcendent world, and that, therefore, limits all problems to the world of experience. By rationalism I mean that our attempt to interpret the world must presuppose premises or *a priori* truths about the world. Against naturalism I maintain that man's ideals can rightly lay claim to the same validity as does his science; and in behalf of naturalism I attempt to justify the atomic mechanical interpretation of nature and indirectly of mind.

The book presupposes on the part of the reader a general knowledge of natural science, psychology, and formal logic.

Next a word about its use for classes. It is not intended to be exactly a text-book. Rather it is to furnish the student with a problem and with enough information about the problem for him to take an active part in a discussion in class. The instructor will doubtless disagree with much that I have said, and will wish to impart to his students his own views and his objections to mine. My expectation is that he will do so, and that the book will be merely a help to prepare the student for this. In short, the ideal introductory course in systematic philosophy seems to me to be not a lecture course nor a series of recitations, but a critical and systematized discussion, — a Socratic discussion if you will.

I hope that all these remarks about college matters will not discourage the general reader by making him think that the book is not intended for him as well.

Finally, I wish to express my heartfelt thanks to my colleagues, Professor H. A. Aikins and Dr. W. D. Briggs, for numerous and most helpful suggestions and corrections in the course of final revision.

WALTER T. MARVIN.

CLEVELAND, OHIO,
April 21, 1903.

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AN INTRODUCTION
TO
SYSTEMATIC PHILOSOPHY

INTRODUCTION TO PHILOSOPHY

CHAPTER I

PHILOSOPHY AND THE PHILOSOPHER

WHAT is Philosophy, and who is the Philosopher? Philosophy is an enthusiasm, a love for the truth; and the Philosopher is he whose life and thought are controlled by this mightiest of loves. Truth is his mistress; and to be faithful to her in thought, in word, and in deed, is the devotion that alone seems to him meet and right. He is a lover of the Truth; but what is Truth? It is the old, old question, and its answer might well be called also the old, old answer. For more than a score of centuries, from the days when Greek civilization had reached manhood, on through the ten centuries of its prime, old age, and dotage, through the centuries, when under the influence of Greek thought the dogmas of the Catholic Church were formulating, on through the Middle Ages and the Renascence, down to and through the days of modern thought and civilization to our own time, this question has been ever before the mind of Europe's spiritual leaders; yes, to answer it her greatest minds have lived, and proved themselves willing to suffer, and even to die.

Philosophy is a love for the truth.

Now what has been this answer of the ages? It is contained in one word. Truth is *Consistency. He that makes it a chief aim of his life in thought, in word, and in deed, to be consistent, he is a philosopher; and the endeavor to bring consistency into the life and thought of the civilization of the day, this endeavor is philosophy.*

And Truth means Consistency.

This explains why Philosophy is misunderstood and seems to lack progress.

Here we have at once the explanation why the philosopher has been so widely misunderstood in our own day. You and I live in a time when the discovery of new facts and of new laws of nature and of mind is praised and honored, in a time that has little patience with a study not giving man directly new means of overcoming life's obstacles and of winning life's allies. This is the work of science. Science to-day is hailed as chief and conqueror; but philosophy is looked upon as a feeble, dotard tribesman, living over from generations now passed away. Our charity and reverence for old age may permit it to remain still among us; but who looks to it for aught that is useful or aught that will help, truly help, the march of progress?

Progress means the gaining of new information about the facts of the world in which we live. Progress means the application of this information to subduing nature to our service. We have not time to sit down to ask ourselves whether all that we are doing, all that we are learning, is consistent, the new with the old, or the one part with the other. We must be up and doing. The world will not stand still for us. What if here and there we are inconsistent? Results are what we seek, and results are what we can show. Behold how we have increased the security of life against disease, against starvation, against hostile peoples. See the luxury and comfort now possible to the day laborer, and the raised standard of living everywhere among us. Mark the means of easy transit from one end of our earth to the other, and the wide and rapid intercommunication between man and man now established the whole world over. Behold the teeming population in countries but recently unable to support a tenth of the men they now comfortably clothe and feed. Look at our great cities, where but recently was wilderness. And last but not least, if you desire spiritual progress, see the truths that our empirical sciences have won for us, where a century ago all was ignorance, superstition, or the mere blind following of worthless tradition.

Such has been and often is still the talk in vogue. It is the talk of the hysterical enthusiast. It is such, because no sane man even dreams of disputing the truth of a word that is there said. It is such, because no sane man can help but be in general as well informed as the one that makes the outcry. It is such, because the very progress to which so much praise is given results from an application of the philosopher's principle, consistency; without which science could never have existed. Who but the man that cannot see, fails to apprehend one of the chief causes, over and above the mere information science has given us, of the material progress of our day? Can we point to a mightier power for wealth and progress than social and industrial organization?

Reply to this Misunderstanding. Progress has two Factors, and one of these is Organization.

Were the nations not mighty peoples but petty and hostile tribes, were industrial and commercial corporations no longer here, but in their stead only the little shop, the merchant single-handed, and the lonely pack-carrier, where then were our boasted wealth and luxury, what then would it serve us though we knew twice the laws of nature, and twice the means of subduing them that we now know? But what is organization? Is it other than a means to be consistent? Is it aught but an instrument to bring each individual and his life into harmony with all the rest of his fellow-men and with their lives?

Organization, and therefore Progress, means Consistency, or Harmony; and the Harmonizer is, as such, the Philosopher.

Ah, if that be so, then there is a twofold work to be done in this world of ours. It is not he alone that discovers new truths and shows us how we may bridle the forces of nature, important, most important though his work is, it is not he alone that achieves the results we call progress. There is another who works hand in hand with him, and without whom the world would fare ill. There is the great social and industrial organizer. There is the man that sees where two forces that should be friendly, are conflicting, and the one destroying the results of the other. He marks the contradiction that exists, and endeavors to learn and to apply the deeper principle that will harmonize them. His motto is, "For we are members one of another." He knows that two elements enter into every movement, — the propelling force and the repelling one. No matter how great the former may be, the latter may easily make it of no avail. True progress must, then, be a twofold one; and they that work for man's advancement must engage in this double labor. There are those who give their lives to accumulate the forces of propulsion, but those lives are no less useful which are given to removing the repelling forces. Now where there are many workers it may easily be that men themselves, in their aims and in their labor, may so act that one destroys what the other would accomplish; that one is to the other as a repelling force. What, then, is to happen? No one man is so powerful that he can subdue all that are in his way; no one man can have the world to himself. Life is, and must be, a movement against resisting forces. There is, then, but one thing to be done. Harmful, needless, profitless resistance must be done away; and this is the work of the philosopher, to harmonize, to make consistent the lives of fellow-men whether it be in their thoughts or in their words or in their deeds. No matter where, conflict must give place to peace. We may, then, call the philosopher the world's peacemaker: and we may judge him that brings peace out of discord a philosopher, no matter where his work may be; no matter whether it be in the organization of industry or commerce, in the settlement of strife between capital and labor, in the making of treaties between nations; or, whether it be in removing the conflict between scientific theories and between religion and science, or in overcoming the struggle between the body and the spirit, — the warfare between things material and things spiritual for the mastery over man; or, finally, whether it be in the revealing to our minds the unity of the individual and the world to which he belongs, — the unity of the finite and the infinite. No matter where we meet it, the work of harmonizing discord and contradiction will belong to the man that is at bottom philosophically minded.

But, as has been implied all along, the organizer is only supplementing the work of another. The mind that finds new facts and the mind that reconciles the old and the new are complementary. Often in the history of civilization we have had men that united in the one mind a mighty power for both forms of labor; and, doubtless, no man is so one-sided that he is wholly devoted to the one or the other. Such great men were in days gone by an Aristotle, a St. Paul, a Descartes, a Leibniz, a Newton, a Franklin, and, in our own days, a Helmholtz, a Darwin, a Mill, a Lotze, a Huxley, and tens of others that might just as rightly be named.

The Peculiarities of his Calling. He is a Thinker rather than an Observer.

Let us look somewhat more at the details of the philosopher's calling. Clearly he must be judicially minded. His work as reconciler demands that he understand both sides of the controversy, and that he do justice to both; otherwise he would establish a peace that were no true peace. His work, as compared with the explorer's, the inventor's, the discoverer's, is at home, whereas theirs is out in the field. They must be trained to observation, he must be trained to reflection. They are great observers, he is a great thinker. In fact, it has often been his stay-at-home life that has caused him to be so misjudged and ill spoken of. He seems to be weaving all out of his "inner consciousness." He does not seem to be a lover of facts and of deeds. He is rather a lover of solitude and of quiet, of repose and of meditation. No wonder the nineteenth century misunderstands him!

But to turn from the man to his work. Of course, from our discussion, it follows that his work is everywhere, —

The Narrower Field of Philosophy. It seeks to harmonize the universal, or most general conflicts.

in the struggles with self, in the family, the state, the church, in commerce and industry, in science and religion, and in morality and art. We would have the reader not forget that to be a peacemaker, or harmonizer, no matter where, is to have the spirit of the philosopher, and to be one indeed. But the work of philosophy, in the more general and historic use of the term, is in a narrower field than everywhere. *In the traditional and narrower sense of the word philosophy is the study of the fundamental problems before the human mind and the endeavor to bring an ultimate harmony into all human thought and action.* The conflicts it would harmonize are the universal ones; and the students in our schools and colleges who would study philosophy are not to expect in their courses in that subject to deal with all manner of human discords. Philosophy in the broader sense may be studied in almost every course, or even lecture, throughout a college or university career, as it may also be studied in every department of life's work. But philosophy in the narrower sense is the subject of the present book, and it is to this we must introduce the reader.

Philosophy in the narrower sense. Meaning of the term, "the Truth," in the original definition.

What is philosophy? We defined it as an enthusiasm for the Truth, and at once asked, What is truth? Two possible meanings of the word have been implied in what has already been said; and we may now denote this twofold meaning by adopting the distinction between "a truth," or "truths," and "the truth." There were, as we saw, two great works for our minds to do: first, to discover the new, and, secondly, to organize or assimilate the new with the old, or to systematize each part with every other part. To do the former work we must collect new facts, and interpret these new facts either through our knowledge of the old or through some new thought of a creative as opposed to a merely traditional thinker. Such new knowledge we call a discovery. It is "a new truth." But "the truth" has quite a different meaning. *The truth*

The Truth is the complete system of individual truths.

refers to that complete body of knowledge that includes in it all truths, — all truths organized into one great system. It is the difference between the scattered parts of a dead body on the dissecting table and those parts united in the living organism, each part where it belongs, each part ministering to every other part, and all together forming a unity whose life and meaning can be thought of as one. Thus, the truth means all individual truths united into one all-including system.

The Truth is therefore only an Ideal.

But if this be the truth, how can we ever attain to it? To construct such an all-including system would require that we have all truths in our possession; but this we shall never have, for as long as rational beings exist new facts will be revealing themselves and demanding to be interpreted and to have this interpretation, or new truth, brought into harmony with old truths and the old with it. The truth then is not something we now possess, or ever will possess; nay, rather, we never shall possess it; but it is an ideal toward which the reason of man is ever striving, — an ideal we can realize only in part, yet realize more and more as our knowledge progresses. The truth is only an ideal. But mark what this implies. It does tell us that we have not attained the truth, but it also tells us that we have a partial idea, a notion, a mental picture of that which we are striving to realize. We may not know the truth; for did we, we should have already fulfilled our ideal. Yet we do know enough about it and its nature to search for it intelligently; for did we not know this, how could we seek it? When you or I hunt for this or that object, it may well be that we know little about the object; still, we must know something, otherwise we should not know where to search nor should we know the object when we had found it.

Now, ultimately, every rational mind is a seeker after the truth; and if this be so, we must all have some faint picture of that which we seek so that we may recognize it when we find it; otherwise, our task were hopeless.

The twofold implication of this Ideal and hence the twofold work of Philosophy.
(*a*) Gaining a more perfect view of our Ideal, the Truth.
(*b*) Realizing our Ideal, by the Organization of Truths.

Notice now what we have been saying. The seeker after the truth has a twofold work to do. He must have an idea, or mental picture, of that for which he searches. He must be able to recognize truth when he finds it. He must have before him, air castle though it be, an image of the ideal called the truth. On the other hand, merely to have the ideal, and yet in no way to realize it, were little indeed, and quite profitless. Therefore he must strive to realize it, and in part succeed, ere he be worthy of the name, a seeker after the truth. But to realize it we have found to mean the organizing of truths into an organic whole, or system. The seeker after the truth must do this also. Hence, if we define philosophy as the search for the truth, we see at once that philosophy's work must be twofold: *first, there is the working out of that ideal, or mental picture, those marks or criteria, those characteristics or descriptions of the truth which will enable us to guide our search intelligently and to recognize the truth and to hasten the day of its complete realization; secondly, there is the organization of truths into a system, or the complete unification of our knowledge.* In its broader sense philosophy includes both. Many have restricted its meaning solely to this latter work; but a moment's thought must show that no man can find an object, or realize an ideal, unless he has some notion of that for which he searches or some picture of that ideal unto which he would attain.

Philosophy needs for its work the truths gained by Science:

The second task, or work of systematizing, is clearly but complementary to the work of those who discover new truths. Clearly, the philosopher could never systematize truths he does not possess, and, therefore, without the discoverer of new truths his very task must be hopeless.

No amount of mere thinking could possibly give these new truths. We must search for the facts. He that would discover gold must go out into the wide world and dig for it. He that stays at home and spends his days in idle dreams of the gold he would discover, will never be more than a poor and worthless idler. No, the philosopher needs the discoverer of truths as much, and even more, than that one needs the philosopher. Our greatest ruler or industrial organizer needs the farmer, the weaver, the coal-miner, and the woodsman. Without them he himself would starve, and his government and organization become a mere powerless dream. As all our civilization is built upon the labor of those who wrest from the soil its potential wealth, so, also, must all philosophy be built upon the truths the discoverers win for us. That philosopher who is false to this truth is as blind and as great a fool as that capitalist who forgets his dependence upon the lowliest laborers of field, forest, and mine. Nothing could be so untrue to philosophy herself as that widespread notion that the philosopher cares for none of these things, but weaves the truth out of his inner self, as a spider weaves its web. This view is utterly false, and they that continue to cry it forth from the housetops show a disgraceful ignorance and an unbounded assurance.

But where there is smoke one may justly expect to find fire. It is true that the philosopher's work is reflection. It is true that by thinking he wins that organization of truths we call "the truth." But even more than this. We found his work to be twofold. He was to construct for us the ideal we try to realize; and this work of necessity must be done from within. It is the product of thought.

And necessarily differs from Science by being purely reflective.

Look the wide world over, where could we ever find the ideal of truth? The truth is not something that exists here or there as a fact beside other facts. It is, as we have seen, an ideal, a something that we strive to bring into existence, but yet something unto which our finite minds can never attain. If this ideal is to be formed how and whence is it to come? Surely only from within us. It is an ideal; an ideal of whom? Of our reason, of our soul as a seeker after the truth. It does not grow on trees, nor is it deep down buried within the earth. No telescope will find it in the heavens, nor will any microscope reveal it to us in the thinnest of sections ever mounted on a glass slide. The ideal comes from within. It is the ideal of our reason, and to our reason we shall have to go if we are ever to behold it. Surely if we are to hunt for anything, why not where there is hope for finding it? Is this not scientific? Is this not rather common sense? Away, then, with that dogmatic foolish blindness that bids us hunt the wide world over for that which exists, and can exist, only within us. The philosopher looking within is just as truly a discoverer as is, and just as truly goes back to the sole source of information as does any natural scientist hunting the world over for his facts.

The work of philosophy we have now seen to be twofold, the formation of an ideal and the organization of special truths in accord with this ideal. The first task, the formation of our ideal, requires that we reflect over the work already accomplished by science, and push on, by means of further reflection, to a more perfect and consistent vision of that ideal than the scientist, merely as such, has attained.

The Scope of the present book: Philosophy in the narrowest sense.

In the chapters to which this is introductory, we shall try to do, in a general way, this second work of philosophy. We shall try, by reflection, to learn something about those characteristics and marks of the truth presupposed in our very search for it. We are thus, in our book, using the term philosophy in its narrowest signification. Almost all scientists, even professionally, are philosophers in the broader sense that includes both tasks. But philosophy, as part of a college curriculum, is largely, if not entirely, devoted to the narrower problem. It is that narrower problem to which this book would introduce the reader. We shall reflect about all general fields of human knowledge, we shall try to find out their ideals, seek for any inconsistencies in these ideals, and try thus to gain a picture of the truth as a whole, but only in as far as it is a mere ideal, and not a realized fact in the minds of men. If we did the latter, we should have to try to unify all that science has taught the world in the way of truth; in short, tell the complete story of the world as far as that story has been worked out by man. This we shall not do. Philosophy for us will be that narrower problem, the attempt of man to work out a picture of that ideal which the seeker after the truth tries to realize. We shall begin by reflecting upon nature, or the world about us, and the interpretation of it thus far won by man. Then we shall turn to study similarly the mind, or the world within us. Next we shall study the world as a whole, and after that the very attempt, as such, to know the world. Then we shall go on to a short study of other fields of truth besides those of science, — the truths of religion, of morality, and of art.

Now reflection is hard work, and he that would philosophize must be patient. But the more we do philosophize, as the more we do any work, the more habituated we become to it, and thus the easier and more interesting it becomes.

PART ONE

METAPHYSICS

(The World of Science)

1. Philosophy of Nature
2. Philosophy of Mind
3. Ontology
4. Cosmology
5. Cosmogony

I. THE PHILOSOPHY OF NATURE[1]

CHAPTER II

THE INFINITE DIVERSITY OF THINGS, QUALITIES, AND RELATIONS IN NATURE

1. The Growth of the World as pictured and interpreted by our minds. The World of our Childhood.

How different the world would seem to each one of us could we but recall fully, and for the moment accept, the ideas, the thoughts, and the fancies of our childhood's days. How small that world must have been when compared with the picture of our sidereal system that the study of astronomy gives to-day. How strange it seemed to some of us, who can recall those thoughts, to hear that our earth is round like a ball, and that the little twinkling stars above are great bodies, bigger than our own mother earth, that away down below lies the land of China, that the great ocean on whose shore we dug in the sand stretches on and on for thousands and thousands of miles. Our first lessons in geography — perhaps they were the conversations of parents — began to open to our minds the thoughts of other lands than ours; and maybe the strange people on the street pointed out to us by them gave us our first thoughts of nations whose looks and costumes were so strange and different from our own. Before that time what a little world must have been ours! It was bounded by what our eyes had seen, as we played or walked about in the district of our home; and up above the sky, the sun, the moon, and the stars were not very far away. The population of our world was not very much greater than our own immediate experience showed to us. Our own ancestry went back perhaps to our great-grandparents, or hardly so far. A dawning faint idea that some day we should be great men or women like our parents had come to us perhaps by this time; but that life was only a brief span, and that some day our parents would be gathered unto the fathers, extending backward generation after generation, and we, too, in turn, — how far were such thoughts from our minds!

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[1] (1) *Literature: Metaphysics.*

The student desiring to commence seriously the study of Metaphysics is advised to read carefully Lotze's Metaphysics. Though it is rather difficult reading, this work is one of the best, if not the best, in all recent philosophical literature.

Hermann Lotze, Metaphysik. 2d ed. Leipzig, 1884 (English translation edited by B. Bosanquet. 2 vols. 2d ed. Oxford, 1887).

A study of the history of the general problems of Metaphysics is also quite important. The chief metaphysical writers in Modern Philosophy are Des Cartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant.

In part this knowledge must be gotten from their writings. Selections of Des Cartes and Spinoza's writings as well as those of Locke, Berkeley, Hume, and Kant exist in English. Series of Modern Philosophers edited by E. H. Sneath (Henry Holt & Co.): (1) Des Cartes by H. A. P. Torrey; (2) Spinoza by G. S. Fullerton. For the others, cf. note to Chapter XXXVI.

For the History of Modern Philosophy, cf. note to Chapter LVII.

Little by little the direct experience of different phases of life, of people, and of material things kept adding now this, now that element to our world; and our teachers,

Other general references are: —

B. P. Bowne, Metaphysics.

F. H. Bradley, Appearance and Reality. 2d ed. 1897.

O. Liebmann, Zur Analysis der Wirklichkeit. 3d ed. Strassburg, 1900.

~~J. S. Mackenzie, Outlines of~~ Metaphysics. London, 1902.

F. Paulsen, Introduction to Philosophy, transl. by Frank Thilly. 2d ed. (Henry Holt & Co., New York). A. Riehl, Der philosophische Kriticismus und seine Bedeutung für d. positive Wissenschaft. 2 vols Leipzig, 1876–87.

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both by word of mouth and by picture-books and the like, kept increasing still more rapidly the size of our childhood's universe. We began to gain a knowledge of our earth as a great sphere, of the vast areas of land and water that form its surface, of the many nations and races that people it, of the great changes time has brought about in the history of Europe and America. Still all this remained very crude; and to be frank, how crude it has ever remained in the thoughts of most of us! We can look over a map and talk glibly of a thousand miles. But what a difference between the thousand miles of walking or stage-coaching or sailing and the thousand miles you or I travel by railroad or ocean steamer. How different are the size of our earth and the multitude of its peoples, to the long and thorough traveller, from what they are to us that stay most of our days at home. So, likewise, the lessons in astronomy and physical geography modified enormously the thoughts of childhood. There arose a faint idea, for most of us still a very faint idea, of the immensity of our solar system and of the ages counted in units of a million of years during which terrestrial changes have been taking place. But here, again, how

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easy to speak of millions of miles or millions of years; and how hard to picture such units adequately. If a day, a week, or a month seem to the hopeful and expectant a long time to wait, what must we say of such ages as geology records? If the tedious walk from village to village consumes a day, what of the distance from the earth to the sun? What merest fragments are even the best and greatest endeavors to picture such immensities! But in time our teachers had to tell us that these ages and these distances are but perhaps infinitesimal points in the countless ages of sidereal evolution and dissolution, and in the endless spaces involved in a space whose bounds are unthinkable.

The universe of childhood similar to that of primitive man and also to that of daily life.

As biology teaches that the growth of each one of us, from the egg to the adult form, is a rough recapitulation of the development of our race from the lower and indeed the lowest forms of life; so also does history in like manner show us that these, our conceptions of the world from those of childhood to those we get from the world's greatest minds, are no more than a similar recapitulation of the thoughts of primitive men gradually expanding and modified into the tenets of twentieth century science. Once upon a time the adult thought of, and believed in, a world no bigger, no more multiform and richer in content, than that of the young child to-day. Strange to say, a few centuries would bring us to the days when to men's minds the earth was not round nor so large, when they thought the sky and the heavenly bodies revolved about it and not at so great a distance, and when even the great universe itself seemed comfortably small. How easy is it even for us to lapse back in careless or thoughtless moments to mental imagery quite as vague and quite as imperfect as that of our forefathers of the Middle Ages. The practical needs of daily life require no such stretching of the imagination as does the endeavor to picture to ourselves the truths of science. Therefore for us the vaguest mental imagery of the vastness of our universe not only suffices, but actually becomes the usual form of our thought. Still, when we are serious and the interest in such deep questions holds our minds, how vast is the change in our beliefs and in our thoughts that these last centuries have wrought. To come to know such a world of time and of space as science and exploration have revealed, meant not only a change in a few thoughts, but a revolution in almost all our thoughts; yes, and even more than this, for a revolution in thoughts means a revolution in conduct, in the home, in the shop, and in the state. Here, in conduct, new thought must struggle for its existence and win or lose its permanent hold on man's mind.

The change to the Universe of Modern Science.

However, we are now concerned with the revolution in thought itself. To have such a new image of the world meant a change in beliefs very dear to the heart of man and very ancient in his history. This change could not take place in a day and could not win its acceptance without an intense struggle, even to the bringing upon its missionaries all the wrath of their fellow-men and of their established institutions, the church and the state. Such a change meant the modification of every dogma, religious and political, and, in time, social and industrial. The church, the hierarchy, the saints, the angels, the spirits and demons, heaven and hell, and, finally, God, as pictured by men, had to be modified; and a new and higher conception of the Creator and the created take their place. The governments that for a time fulfilled a province's or a nation's needs became too petty for the expanding industrial and social life of the people. Thus, from the thirteenth century to our own day, revolution after revolution marks the progress in thought, in science, in religion, in government, in industry, and, in short, wherever our attention turns. But the story of how the world has come to be to our mind so vastly greater, is only half the story of the change in our mental representation of it.

2. The World of Modern Science.

The World of the infinitely great and of the infinitely small.

As we ordinarily look at the objects about us or think of them, they are for us, and remain for us, such as they then appear; but later, when science has carefully informed us of their hidden nature, and we have understood her message, a great change must take place. What a different object a little piece of animal tissue or a particle of a leaf appears when there comes to the assistance of the unaided eye a focussed microscope. What before was a mere speck, hardly big enough to be seen at all, has now become a highly complex group of little cells. The body, whose exterior we know so well, has to be reconstructed for us by microscopic study into an infinitely more complex and wonderful system. Yet, even here, we have to feel that science has made but a beginning. The object that we magnify several hundred diameters, we have to think of as admitting a much greater enlargement could we but find means to produce it. At each new step perhaps a greater and greater complication and variety of parts wait to be revealed to us, until, finally, our effort to imagine the object has to cease through complete inability to picture aught further. Seemingly our intellect, if not our imagination, permits us to grant the possibility of an indefinite enlargement. The little particle of skin that looks so complex under even a glass of low power, might be enlarged on and on until it would appear as big as a mountain, or as the earth, or as the solar system; yes, on as far as we will. Would each such imaginary enlargement reveal to us new complication and variety of parts, as does that magnifying we are able to accomplish? At least, such an assertion has to be admitted by our intellects as that of a possibility, and, maybe, even a probability. A probability it would be, because already two sciences inform us about the hidden nature of such exceedingly small particles, vastly beyond what the most powerful microscope can show. Chemistry tells us of the so-called chemical atoms that compose this piece of tissue or this particle of rock; and these atoms, with their way of working, although in some respects so well known to us, seem almost infinitely smaller than the objects of the microscope. But there is still a world beyond. May there not be, as speculation in physics leads us to expect, a whole world of objects entering into the composition of each one of these atoms. Then, again, those vast spaces surrounding our earth on all sides are believed to contain means by which the light and heat from the heavenly bodies are carried to us. These means of transport are a world of particles vastly smaller than any atom of which our chemistry teaches us. So here, again, we are introduced to a new world; and if we are speculative, we may think of this world in terms even of the infinitesimally small.

Thus, on the one hand, an increasing knowledge has enlarged the world as represented to us by our minds. The earth, the solar system, our sidereal system, and the boundless realms of space, we have before us — the infinitely great. On the other hand, the same knowledge has put behind the world another world hidden to our senses, — the world of the microscope, of chemistry, of physics, — until finally our intellects suggest the limitless enlargement of parts, and so the existence of the infinitesimal world.

What a different world it is from that with which each of us began in the first months of babyhood, and what a different world from that in which each of us usually lives in the daily walks of life. We talk glibly enough about chemical formulæ; we look at the sun and the stars; and did one ask us about their distance, we should talk just as easily about the millions of miles as we do about a dozen inches. But this is simply due to the feebleness and poverty of our imaginations. Did we think but a moment, we should be conscious how inadequate, from the point of view of the whole truth, the usual representation is. Of course, the usual representation is quite sufficient for the wants of the hour and satisfies those wants far better than if we spent our days dreaming of the infinite expanses on the one hand and their infinitesimal contents on the other. But somehow, what serves so well the practical needs of daily life, falls far short of the world that an unlimited intelligence and imagination would represent.

If there seems such a difference to us who have been brought up to believe in the world that science has in part revealed, how great and overwhelming would that difference seem to men to whom it was entirely new. To the people of the Middle Ages, who lived in so much smaller a world, and to the people since those days, science has been telling this entirely new story, and has thereby been introducing new thoughts of a revolutionary character, yes, thoughts that often meant an overturning of beliefs of which the mind had become most fond. How natural, then, does it seem that resistance was offered to the new ideas, and that only very slowly has a readjustment to the new, and thereby a rebuilding, taken place.

The World, and its infinite variety, and eternal difference.

But the world of the infinitely great and of the infinitely small is far more than this. Our world is also one of infinite variety. Look where we will there is always something new to find, something different to be discovered. What could seem more nearly alike than the pebbles strewn along the seashore, but do we ever find two really the same? On the maple the leaves all look sufficiently alike to be recognized at once as maple leaves, yet how easy it is to pick any two and notice a difference between them. In some families the common type of feature is so marked that we can recognize even strangers as members. Yet seen together we easily distinguish even the very closely resembling twins. From cases of this near similarity of feature we turn our attention to that of faces in a great crowd. All are distinctly human, but there seem to be never two alike. So we could go on recalling the wonderful variety throughout every type or sort of object in the whole realm of nature. It is true, we should have to stop when we came to objects too small for us to see, or in some way directly to perceive. Thus it is true that you and I may not be able to find any difference between one set of atoms of hydrogen and the atoms of the same element elsewhere. But still there comes to one the belief that could we only see them as we see the leaves of the maple tree, the same wonderful variety would reveal itself here also. Is there any end to it as far as we can judge or as far as the facts of nature lead us to believe? We have to answer No, and thus regard the world as composed of objects admitting of an indefinite variety. Not only do these objects themselves differ, but their motions seem likewise to differ wherever we are able to observe them carefully. Who ever threw a stone through absolutely the same path in the air, landing upon the identical spot of ground as did the stone that he threw before? In short, who of us ever repeated an act with absolute accuracy? A careful measurement or observation would be sure to show parts of the act a little different in the one case from like parts in the other. We may try to play a piece of music twice over, but every time we do so, and are keenly observant, we are sensitive of differences. And what is true in such complicated activities as our own seems equally true, for the best of reasons, of the simple activities in the material world about us. What day is the exact repetition of some previous day in atmosphere and temperature? What river flows two successive days in exactly the same channel? We find evidence of its wearing away continuously some of its bank or altering the course of its channel. The difference from day to day may be exceedingly small; but still we believe that sufficiently delicate measurement would betray it. The stars seem to follow day in and day out the same paths in the heavens; but if there be the fine variations in latitude the astronomers seek to determine, this must mean a continuous change in their paths. Likewise, too, we know the path of the earth is influenced or changed by its relative position to other heavenly bodies. Must it not then follow that as this relative position is constantly changing, so must also the path of the earth? Again, through the constant change in the heat stored up within our earth and the constant radiation of this heat into space, the strain upon the crust of the earth must be constantly altered, and thereby changes in that crust must take place. So likewise in the ocean. In animals and in plants growth and varying environment must be ever producing different actions and reactions. We hear over and over again of human nature being ever the same and of history repeating itself; but we do not mean this except in a rough way. No two instances of human conduct, no two stages in the world's history or in a nation's, are mere repetitions. A new element, and a very large new element, is sure to be found, if our observation and information be but fairly accurate and complete. Thus we find, no matter where we look, and we believe we could find even where our senses fail at present to reveal it, an indefinite variety of objects and an indefinite variety of actions or changes taking place in or through these objects.

But these statements do not even yet exhaust the list of nature's wonderful wealth. We have spoken of size, of grouping of parts, and of shape, and, finally, of changes so far as they consist of motion; but we have neglected to mention the wonderful wealth and variety of nature's qualities. How indefinitely long is the list of qualities revealed to every chief organ of sense! Take our sense of smell and taste, but above all our sense of sound and vision. How indefinitely great are the varieties of sound! There are not merely all the different tones of the scale and all their combinations, giving rise to an indefinite number of musical compositions; but the same note played on different sorts of instruments gives quite a different sound. Yes, even more, to a very keen ear how different are the sounds of two pianos, or of any two other musical instruments, and of the same pieces played by different artists. However, there is nowhere else to be found in nature at large so wonderful a richness in quality as our vision reveals to us. Nature's possibility of variety in color seems truly infinite. To ask how many colors there found is but to ask how many colors we can see. The list, according to psychology, would surely be in terms of thousands.

Yet again we must add to our list a new and most important element that gives possibility of variation. We refer to time. Think of the changes that take place with each one of us in the course of a day, a year, a lifetime. But remember, further, that the great changes of nature are the work of centuries, yes, of æons measured each in terms even of millions of years. Such are the wearing away of a cliff by the ocean, the rising or sinking of a coast or of a continent, the origin of new species and races of animals and plants, the coming into being of new planets and their gradual consolidation, the rising of new solar and even sidereal systems. On, on we might go into the past or into the future. Where shall we put the beginning or the ending of nature's activities? Yes, dare we even suggest that there was a beginning or will be an ending? Are not they infinite in duration?

Thus far we have described the world that we gradually come to know better from childhood on, in terms of its most general characteristics, that is, in terms of its size and of its parts, and of the variety in the combination of its parts and activities. Finally, we have spoken of its indefinite richness in qualities. Already enough has been suggested to cause the intelligent imagination to go on with the work of picturing to itself, with ever increasing wonder, the infinite variety of things and qualities of our world as it extends in space and time without end. Yet all this has been done in terms of very wide and therefore very general significance. Did we take up each type of object beginning with the largest classes and going down to less and less extensive ones, and give some adequate account of each, we all know that the largest library could alone contain the results of human endeavor so to describe the world. Every book in all the branches of science and literature is only an attempt to add its small share to such a description. And, after all, what has been described is by no means all that is, but rather only that part of what exists which has interested man and become sufficiently evident to him. Here it is that the master of every science feels profoundly what a mere beginning our sciences have made. Especially is this true of those that deal with nature's most complicated manifestations, such as life and society. As a consequence, the farther we try to proceed in our work of pointing out the wealth of nature, or the farther our reading and study of science, of history, and of general literature take us, the vaster, the more wonderful, yes, the more clearly infinite does nature seem in every respect.

CHAPTER III

THE GRADATION OF THINGS, QUALITIES, AND RELATIONS IN RESPECT TO THEIR UNIVERSALITY AND PERMANENCE

To interpret Nature in all its Infinitude is a task that is itself infinite.

SUCH is but the briefest résumé of that world we call nature, the world about us. On the one hand, we see its infinite wealth of existence, countless objects and their infinite changes, the infinite richness in qualities and the infinite variety of grouping and combination. On the other hand, we see the gradual growth of man's knowledge of this world and, therefore, of his ability adequately to picture it to himself. We see the world of the child and of the man, of the uncivilized and of the civilized, of the ancient and of the modern, of the last century and of our own century. We see at once the infinite task the mind of man has before it in gaining a complete knowledge of a world so manifold and changing. All this is at best a faint, brief, and necessarily vague picture of the problem that nature presents us.

This would mean Intellectual Paralysis were it not for the Limitations of our Experience and all its Repetitions. These make possible our becoming at home in the World.

Did we come to realize nature fully or picture it vividly, the effect would be to overawe us, for the task that the intellect has to do is so stupendous that the mind would be indeed overwhelmed, yes, paralyzed. Were it brought thus face to face with nature all that it could realize would be chaos, infinite chaos. Fortunately, no such overwhelming experience is possible, or at least possible for more than a moment. The world in its fulness is an experience no finite mind can have, and the feeble attempts of our imagination carry us but a little way. Yes, fortunately, we are better fitted for our work. The very limitations of our experience save us and make the work of knowing and picturing the world a possibility. The experiences of childhood are very limited, and are full of all manner of frequent repetitions. Otherwise the child could never advance beyond its first stage of intelligence. In short, time and repeated opportunity are given it to find its way about in the entangled, boundless forest of the world. All this, however, is possible only because its footsteps are few and because it wanders even then within a very small forest area. As it grows mentally and physically, it wanders farther and in more directions. In time it can climb neighboring hills or some towering tree and gain a faint view of the surrounding forest for a short distance, or occasionally for miles beyond. This gradual acquisition of knowledge or orientation in the child's complex environment so transforms its world from a chaotic experience into an ordered familiarity with things about it, that it feels at home in the world and lives in peace and safety and in happy ignorance of the world beyond the home. Yes, who would have a home that lived in a different household every day of his life? Happily such is not our life, for nature has made it possible for every man to be at home even in an infinite world; she has forced every living being to become more or less at home somewhere on peril of existence itself.

To know, or to become at home in the world is a process of analyzing our experience and recombining selected elements.

Now what do we mean by becoming at home in the world? Essentially the same thing that we mean by becoming at home in a new house, in a new family or circle, or in a new town or country. In a new city I am at first bewildered by the strange and crooked streets, the unfamiliar houses and shops, the perplexing street-car system, the strange faces. After a while the main streets become familiar. As I walk through them day after day, one part of them after another, or one feature of them after another, becomes fixed in my mind. There is the same house I have noticed day after day. So-and-so lives yonder. This corner if turned takes me to such and such a friend's house. There is the fashionable shopping district. Two streets farther, and we shall come to the City Hall. That car line would bring us to such and such places. So it goes. Thus little by little, now one point now another is noticed; and we make a great deal out of just such little points, really exaggerate them, for out of them we construct the whole. Who can picture all the houses on any long street? We can remember those that have attracted our attention and interest, but the others refuse to come up in our imagination. How often as we walk along such a street does it suddenly flash across our minds, "Why, there is a house or shop I do not remember having seen before." Yet nothing can be surer than that we have passed it and seen it hundreds of times. What better proof that we notice some things in life and fail to notice others, that some features of this world become to us all-important and others are quite neglected. Thus ultimately a familiarity with anything means that we have noticed some of its features or characteristics, that we have picked these out and neglected the others. So it is in our daily life.

The task of Science differs from all other knowledge only in being more thorough.

But now we are trying to be scientists; and therefore we ask: Is it different in our attempt to get that clear, systematic, careful view of things for which the true scientist searches? It certainly is not. We select the features or characteristics of things that somehow attract our attention. The rest escape, and fortunate it is for science that the same truth holds for her as for the infant. Our psychology tells us two things are necessary for the growth of knowledge: repeated experiences and variations within these experiences. The same old humdrum forever would not be a way to learn to know the world, yet the other extreme would be equally hopeless.

Now in trying to find his way about this world the scientist is very ambitious. He climbs hills to get a broad view, or, again, he goes back and forth to see whither a street leads, to see where its turns are and what are its new directions. He notices things that other men let pass unnoticed. He joins together this appearance with that, and thereby connects or orders different features of things or different things that most of us hardly ever think of connecting. We walk over much the same beaten track every day without noticing the less evident connections between things until they are pointed out to us. How many of us might have gone through life and not have noticed the following connections had they not been pointed out to us by our teachers or others. That a triangle equals half the rectangle constructed on its base, and with the same altitude. That a circle has of all figures with equal length of boundary the greatest area. That the tide has aught to do with the position of the moon in the heavens. That our brain is the organ most intimately related to consciousness. That the weight of the air causes water to rise in a pump. And so indefinitely through the countless truths of the simplest popular science. Yet their discovery by science means simply the same sort of discovery that the infant makes when he notices that pounding the table gives a different sound from that of a spoon falling on the floor. One has merely noticed less evident connections or differences between things than has the other. Otherwise the two achievements are of the same sort.

To connect two things means, as a piece of knowledge, to take them to pieces and to put them together again in a different way.[1] We watch the position of the moon and the motions of the tides; in short, we compare them in respect of time. But to compare them in respect of time means to discriminate them, and so to separate them from the general manifestations of nature, to observe one characteristic and to consider that all by itself. The moon and the tide are not at all alike; but let us once notice that they undergo certain changes together, and then we are at once tempted to connect them. Why do we connect the thunder with the lightning? Simply because we have noticed a definite time relation between them. They are very unlike, and were there no regularity in their occurrence, who would suspect such an intimate connection? Yet the connection is a very easy one for us to make because it is so easy to notice that they do occur closely together. Thus, to find the relation or connection between things, we have to have our attention attracted to their peculiarities, or, better, their common peculiarities. We have to separate mentally the object's characteristic that makes it like some other, and that may prove to be the basis of a connection between the two.

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[1] Psychologically speaking this is of course not strictly true, for the mental process is often much simpler. However, as *knowledge* we have to describe it thus. Cf. chapter xxxvii.

But in the infinitely manifold world in which we live this noticing of some common characteristic is usually very difficult. It is just like trying to connect two things about which we are asked in a riddle. We see no connection, and soon tell the inquirer we "give it up." He tells us the answer, and we laugh at the strange connection. It is ever so easy to see it now that we are told, but how hard it was before, in fact, how almost absurdly impossible it was to detect the connection. Why? Because, to detect it, we had to analyze the two things and pick out some characteristic in this case at least very unnoticeable. So, also, is it with the infinite variety of characteristics we see in the world.

To discover and to point out the common characteristics of things is the work of science, in fact, of all knowledge; and to do this, as we have just seen, we have to pick out even the most obscure peculiarities, qualities, and connections. This work of analyzing goes on in us from childhood; but it has gone on in our race and civilization for ages. The consequence is, our own observation gives us but little information as compared with all that tradition furnishes.

The results of the analysis of our Experience, and the consequent classification of objects.

But what are the main results given by tradition that govern us in picking out the qualities of natural objects? Above all else the discovery that in the infinite variety of qualities or characteristics some are very scarce, others are very common, some are seldom found in things, others are very often found, and still others are always found. Then, again, that most objects are undergoing change often or even continuously, and that in this process of change some qualities are very short-lived, others longer-lived, and still others are eternal. Thus it is found that all societies have some characteristics in common, everywhere and always. That all men have such. That all animals, all living objects, all organic objects, and, finally, all objects in the whole realm of nature have some in common. Here we see at once how the different classes must be connected together always in some respects, no matter how they may differ in thousands and millions of other respects; and how in the infinite world there is a hierarchy of universality or commonness of occurrence among the qualities. Such a hierarchy is to be seen in the common classification of nature's objects into the physical, the chemical, the biological, and, finally, the sociological kingdoms, or types of phenomena.

This classification results in a gradation of objects in respect to their Complexity.

If we examine the bases upon which this division of objects into classes is made, we shall find that the one basis varies in complexity from the other. The more extended, or all-including, any such class of objects is, the fewer characteristics are required of an object to be a member of that class. This is the familiar rule in logic: as the extension of a term increases, its intension ordinarily decreases. Thus the science that interprets objects as members of any one of these several classes will deal with problems of wider or less extension. Physics deals with problems of universal extension or application in nature; chemistry with problems of less extension, and so also with biology and sociology.

The World of Physics.

We find the world divided by physics into two sorts of objects, — the imponderable and the ponderable. On the one hand, we have the ether with its phenomena, such as light, electricity, and magnetism. On the other hand, we have those objects that for our senses admit of a fuller knowledge, the objects that have weight and whose bulk becomes often sufficiently great for us to perceive them through sight and touch. In this ponderable world, admitting of a larger experience than the other, man has discovered differences that enable him to make a greater number of important distinctions. The chief of these form the basis of that knowledge of nature we call chemistry. Here, then, we come upon a new division of objects, first of all into the organic and inorganic world. The real, or original basis of this distinction is the relatively simple and complicated chemical structure of different objects. Those objects that are either alive or have been alive or are products of living objects, were found to be chemically more complicated than other objects. In time, however, the chemist was able to construct from purely inorganic objects compounds that were organic. So the recognized basis of distinction between the two classes of objects has become the presence or absence of the element carbon in their composition, — those that contain the former being, of course, organic and the latter inorganic. Still, for us, the important point is the relative richness of the one form of object in qualities, or, more broadly speaking, in characteristics, as compared with the other.

The World of Chemistry.

The World of Life.

But the moment we make the division, organic and inorganic, we commence to think of that higher division we meet in the former class, of objects into living and lifeless. A new world now draws our attention, — the world of life. Here we find such a marvellous wealth of qualities and other characteristics along with such a complicated structure, that the work of science, to discover and describe, becomes far more difficult. We need not here enter into a discussion of the abstract definition of life, for the division presupposed is a quite familiar one. There are, however, many leading characteristics that do deserve a passing attention in our present line of thought. Those of us that have not studied biology are very apt in thinking of the living to give all our thought to the higher living objects that commonly attract our attention, such as the common plants we see about the field, the roadside, and the garden, and the common animals, including man, and the beasts of the field and forest, the birds, the fish of the sea, the insects. We are thus apt to forget the forms of life that are microscopic; we are apt to forget that the chief elements that make up a living body, the cells of the muscles and bones, the ganglion cells of the nervous system, the ovum, the cells in the blood, are each by themselves living objects. That, in short, our definition of life would have to hold true of them just as of the more familiar forms of life. We recognize the latter forms so easily by their movements, either the movements of growth, or the movements leading to the procuring of food, or the avoidance of enemies, or defence against them. It is the fitness of their activities for the preservation of the individual or the species that especially attracts attention. But to embrace all forms of life we might want to make this statement even broader. We might rather say we find that living objects play some active part in the world. They are not merely the creatures of forces without them as is the stone or the river. They act, and their action gives them some element of independence. Their acts take at least some account of the forces without, and show, to some degree at least, an ability to cope with such forces, and even bend these to their service. Where we see such adaptation, we at once suspect that life exists.

The World of the Organism and of Society.

But there are so many grades of life and, therefore, so many degrees of ability to cope with the forces that surround the creature. One of the most wonderful, yes, the most wonderful of these adaptations, may be described as a partnership of individuals in the work of adjustment to environment. Such partnership might in cases here and there be but the temporary result of purely accidental circumstances; but in the great mass of cases we find evidence that each of the creatures is definitely constituted for the office named. It is here we come upon those phenomena we call organic and social. There is the life of the body, and there is the life of the family, and, again, of the general social body, in one case a mere horde, in another a tribe, in another a nation, and, finally, in the last stage the coming of nations into closer touch and into coöperation. We have many minor complex social manifestations within the larger groups: the castes and classes, the industrial and political movements, and the religious and moral movements with all their accompanying phenomena. In our study of history we get the social phenomena in that broad view which shows their gradual growth and widespread effects:—the gradual growth of a national idea that little by little works its way into every branch of social life and transforms that life.

We may grade the Worlds from the point of view of their Universality, and similarly the sciences whose fields they are.

If we examine again the hierarchy of the different classes of objects, we shall see that characteristics found universally in the higher class belong to all members of the class below. In short, we find that the study of animal life is dealing with more general characteristics than the study of man, because whatever is true of animals as a whole is surely true of man; but on the other hand things are true of all men that are not true of all animals. Hence we find that the science corresponding to the different classes of objects deals with more and more universal characteristics or qualities as we go down the scale from sociology to physics, and in our list chemistry and physics deal with the most universal.

In short, natural sciences differ in the Universality of the characteristics they point out and interpret in things.

Let us next proceed to determine what these most universal and the absolutely universal qualities are. First let us ask the chemist. He tells us there are two great classes of material objects to one of which his laws apply, whereas for the other there is no chemistry; namely, there are those objects that have weight and the properties called chemical affinity. Of all ponderable bodies the chemist asks of what do they consist. He has found in reply to his question that any body may be divided and divided until we come to a point where further division in any body whatsoever changes its composition. These ultimate forms he calls molecules. Thus there is a molecule of water, of salt, of air, of glass, of cooking soda, and so on indefinitely. His division has not reached a point where water has ceased to be water, or salt, salt. But in the vast number of bodies composing the air, or the crust of the earth and their inhabitants, the division can be carried farther. Water can be divided until it ceases to be water, salt, also, until it ceases to be salt, and so on indefinitely. As a result of this further division the chemist has found that all ponderable bodies with which he is acquainted consist of yet minuter bodies that have resisted every attempt at any further division. These bodies have, accordingly, been called atoms. But these atoms differ greatly in their properties or characteristics or qualities, and it has been found that we have about seventy different kinds of atoms, or chemical elements. In this way the chemist is enabled to look upon all ponderable bodies as made up of bodies called chemical atoms; and therefore the general laws of chemistry can be applied to all such bodies. As a result, we are told that all ponderable bodies have certain properties, or characteristics; and therefore these characteristics are universal within the class. No matter how such a ponderable body may change, certain ultimate truths or chemical laws will hold concerning it; in short, it will, as far as our ability to change it goes, retain forever certain chemical properties.

The most universal of the natural sciences is Physics.

But our analysis of nature does not end with chemistry. One element differs from another, and some things, such as the imponderable bodies, are not even elements. Then, too, it may be that the chemical atoms are composed of simpler bodies yet. If this be so, we must say that the chemical properties of any given atom are not necessarily absolutely permanent and are not universally found. Therefore can we not go farther and make an analysis of bodies where we shall have properties that every body in the whole universe must be supposed to possess, and thus properties that can never be different, no matter what change takes place to alter the given body in other respects? The science of physics tells us what these properties are. Every body must have extension, it must occupy some space. It is impenetrable, that is, two bodies cannot occupy absolutely the same space. Every body occupies at any given instant a definite position in space, or is in the act of passing from one position to another. In short, every body is, or can be, a moving body. If a body moves, it never ceases to move at the same rate of speed and in the same direction, unless it transfers its motion to other bodies, or, in other words, unless they alter its motion or its direction and have theirs in turn altered by it. Thus, upon analysis, the world of nature is composed of a great expanse, called space, within which are an indefinite number of bodies having extension, and each its own peculiar location, and within which these bodies move or change their relative position. Consequently, every body has extension and impenetrability and location or motion from place to place. Here we then have the highest class in the hierarchy, a class having so few and so universal characteristics that all nature's objects whatsoever may be brought under it.

CHAPTER IV

THE PRIMARY AND SECONDARY QUALITIES[1]

1. The Primary and Secondary Qualities.

At this point of our discussion we come upon a view that has been widely held, formerly among philosophers and now among natural scientists. These universal characteristics belonging to all objects of nature are separated from the others, or non-universal characteristics. The former, or physical ones, are called the primary qualities, whereas the others are called secondary. But many thinkers do not stop merely at this distinction. There is a difference in the reality itself of the two classes of qualities. The primary qualities are regarded as really existing in, or belonging to, bodies; whereas the secondary qualities only appear to exist in the bodies, but are really only the way in which our mind pictures them. Let us examine and describe this view at greater length.

The former are said to be objectively real, but the latter are only subjective.

The argument that color is subjective.

The objects of nature generally have color, and if of sufficient size are seen by us. But does this color really exist as their property? We receive the answer, No. For instance, take the apple we hold in our hand. In the first place, the real object is composed of particles or molecules. Secondly, the ether is set into vibration by the sun, and these vibrations are passed on through the space between the earth and the sun, and are finally, in part, conveyed to the surface of the apple. Here two things happen. Some of the vibratory motion is retained by the surface of the apple, or the molecules, and some is thrown back, or reflected. These reflected vibrations, or waves, in the ether pass to the retina, in the back of the eyes. Here a chemical decomposition is caused by them, and the particles in our optic nerve are set into motion. This motion passes to the back of our brain, and there other motions are caused by it. Then we see the red apple. But in the world without our minds, the real apple is not red. It is only a body that reflects vibrations of a given form and rapidity. Now what is true of our apple is true of all colored objects. Their color is the effect of their motions upon our mind. What really exists in the world without is not the color, but the moving body or bodies. To show this still more clearly. As the sun goes down and the light in our room grows less, the colors of objects change. But how can this be, if, to take an instance, our red table-cover be really red? It cannot be red in the darkness as it is in the light. But why not? All we can say is, its particles have altered the character of their motions, and therefore do not stimulate our organs of sight in the same way as they did when the sun shone into our room. Again, here is a man that is color-blind. We can put before him objects that are differently colored, and he fails to distinguish this difference and maintains that he sees the same color in each case. How are we to explain this? The objects are, and must be, either alike or unlike. The discrepancy must be in the observers, and perhaps entirely within their retinas. Therefore the color seen depends not upon the object, but upon the nervous system. Thus, the color is not a part of the object, but consists only of those activities that form the means of stimulating our organ of vision.

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[1] *Historical Note.*

The division of qualities into primary and secondary goes back to the Greek Atomists. It was adopted in Modern Philosophy especially by Des Cartes in whose metaphysics it plays a very important part. Following Des Cartes, John Locke adopted it.

Cf. especially Sir William Hamilton, Lectures on Metaphysics, Vol. II, p. 108 ff., for history of distinction, and Baldwin's Dictionary of Philosophy and Psychology.

The argument that Sound is only subjective, and likewise the other secondary qualities.

Likewise regarding sound. It is not a real sound without our minds, in the world about us, that makes us hear, but the vibration of the air that beats upon the drum of our ears. A man's voice does not travel over the telephone wire. What does? Electric currents. By means of an electric magnet these cause the diaphragm in the receiver which we hold to our ears to vibrate just as does the diaphragm of the instrument into which our friend speaks. Hence the vibrations of air set into existence by the vibrating diaphragm of the receiver are very much the same as those that would strike against the drum of our ears were our friend talking to us in the same room. The sound we hear is therefore not a picture of the changes or events without our minds, but is only caused by them. The sound exists within our minds, without is the vibrating air. So likewise with heat and all other secondary qualities: they are seen or felt by us because the objects about us are constantly causing, directly or indirectly, activities, that is motions, in our nervous system. Therefore these secondary qualities are mental, or subjective; whereas the primary qualities, the motions and extension of the bodies, form the real world of nature, or the objective world. The secondary are merely mental states that exist in our mind as we perceive the objects about us, and therefore have no existence apart from the perceiving mind. The others are truly present in the objects themselves entirely apart from our perception of those objects. Were there no perceiving minds sound would not exist. What would exist would be the vibrations of the air that give rise to our sensations of sound. Likewise there would be no light, but only the vibrations of an imponderable medium that now give rise to the stimulation of our optic nerve.

II. *Criticism of this doctrine of the reality of qualities.*

Can we, as critical students of the fundamental tenets of science, accept this doctrine of qualities without modification? Let us try to determine the facts, and thereby to see whether the general doctrine be a just interpretation of those facts, or whether the doctrine, true in part, has not been made false by a misunderstanding of its real meaning. Surely no one of truly scientific spirit would nowadays maintain that any *a priori* constructions of our intellect could, entirely apart from experience, justify such a doctrine. In short, no one will deny our assertion that such a theory must go back to some facts of experience to justify itself. Nor will he deny that these facts are revealed to us through our organs of sense. In other words, the man that maintains the subjective existence alone of the secondary qualities must have had some sense-experience that he regards as proof of his position. Therefore we, as critics, must find those facts which lie at the basis of this whole doctrine, for they and they alone must be the key to the criticism of the theory.

1. What are the facts back of this doctrine?

They show only a difference in the permanence and universality of the two classes of qualities.

First, then, what are those facts given us in every day's experience that at once mark off the one set of qualities from the other, and thus constitute the basis of our doctrine? The answer to this question has been given in a general way already. It is the truth that some qualities, or characteristics, of a thing are more permanent or universal than are others. In other words, a most interesting fallacy is here made by those who believe that the secondary qualities do not exist objectively. They have mistaken "exceptional existence" for "subjective existence," and "constant existence" for "objective existence." So much for a brief statement of our results. Let us see whence we get them.

The Proof of this statement.

In science we seek the common, or general, and ignore the individual, or peculiar.

If we wanted to make a study of dogs, we should of course try to get a large number of specimens of that species, and examine each carefully. Yet, on the other hand, who of us would go as far as to say that we should see every dog on the face of the earth and examine each carefully? For some reason or other, there would be such a thing as wasting our time by going too far in hunting for specimens, just as there would be a liability to error in not seeing enough specimens. After a moment's meditation it will be evident that our reasoning would be something like the following. All dogs are so much alike that if we examine some representative specimens of every type or breed we shall have ample material for our study. Dogs are sufficiently alike to allow us to let a comparative few represent for us all the dogs on the face of the earth. A thousand would serve our purpose as well and probably far better than a million, and even this thousand we might be disposed to regard as too many. But right here mark well: we did not say dogs are alike, but *sufficiently* alike. What does that word "sufficiently" mean? It means that we might affirm that no two dogs in the whole world are really alike. Each dog may have his own peculiarities; but we do not care about these. We care only about those characteristics that are more or less common to the dogs of any one breed, or, again, to dogs in general. The peculiarities of the individual dog we neglect; whereas the common qualities that any good specimen will have, these we seek to know. In short, any few good specimens of a breed give us the characteristics not of every dog in that breed, but the characteristics in which we are interested, namely, the common characteristics. Just think what a state of affairs it would be if a botanist who wanted to study the grasses were obliged to examine carefully every blade in every grass plot or lawn on the face of the earth. Or if a writer about the American people had to become the intimate friend of every man, woman, and child in our broad land. At once it becomes evident that no matter where we turn, the scientist is interested not so much in the peculiarities of the individual as in the characteristics alike in many individuals.

Here at once we may divide the qualities of anything into two classes: those that are common to the class, and those that are peculiar to the individual. If we do this, what becomes at once evident about the frequency with which we meet the qualities? Why, of course, the common qualities are found in every specimen of the class with which we come into contact; whereas the peculiar qualities are seldom met with, and, in fact, most of them are never noticed or seen by even the best student of the dog, of the grasses, or of any other class of things. Thus the common qualities are the frequent, or permanent, qualities, whereas the peculiar qualities are the infrequent, or variable, qualities. This, of course, does not mean necessarily that our dog Jack has his peculiar characteristics constantly changing. But it means that as we study dogs, going from one to the other, the peculiar qualities keep changing and the common qualities are met constantly, or are permanent. Of course we could take away from Jack some fairly permanent quality. We could cut off his tail. But, clearly, permanent in this sense we do not mean. Rather we mean permanent in the sense of universal.

The common qualities must be the more usual or the more universally found; and this means they are less liable to be absent or to disappear in the course of change.

Now what has all this to do with primary and secondary qualities? Why, just this. Some characteristics are common to everything in the whole realm of nature, whereas most qualities are variable, and some seem variable indefinitely. The universal, or permanent, qualities are the primary ones, and the variable, or peculiar, qualities are the secondary ones.

The bearing of this truth upon the problem of primary and secondary qualities.

Here before us lies an apple. It is red as I now look at it. If I put a blue glass in between, it is blue. If the room gets dark the red loses its saturation, or ceases to be a tinted color, and becomes gray. Finally, the room may be so dark that I cannot see the apple at all. However, I can stretch out my hand to take hold of the apple and thus recognize it perfectly as the very apple I had seen a few moments or hours ago. Now it has no color, as far as my senses inform me, but it has bulk, or extension. It occupies space. Had this characteristic gone away the apple would have seemed to pass away too, yes, to have been annihilated. Again, two men walk into a room; the one has a chill but the other is healthy and has just come from the cold air out of doors. To the one the room seems cold, to the other, hot. From one point of view each man is right. The room is cold and the room is hot. But each statement is peculiar, not general. Neither represents a characteristic permanently true of the room.

Now, as we go up and down the world, what are those characteristics, or properties, of things that are ever found, that never vary, in the sense of never being absent? At once we must say: Everything in the whole realm of nature must occupy space, must be extended. It must have length, breadth, and thickness. It must be impenetrable, in the sense that did another thing occupy absolutely the same space that it did, it would no longer exist; it would have been annihilated. The color may change and even cease to be apparent. The heat might go or come. The apple might taste bad or good. The flower might smell fragrant or not so. The noise might rise or fall or disappear. However, in any case every object, large or small, moving or stationary, colored or not colored, would and must have extension. Thus, as we examine objects of the same class we find a variation in some qualities and a permanency in others; and as we examine all things in nature, we find certain characteristics, namely, extension or occupying space, ever present, and all other qualities varying. There is still another truth that experience finds holding ever of the things of nature. It is that every extended thing must be somewhere, namely, have a position relative to other things. It must be above them or below them, to the right or left, and so on. And this relation, called position, is ever liable to change. Now change of position is motion. Hence we get a universal permanent truth holding of material things, they move or are liable to move. Thus we may sum up the most general characteristics of nature in the two words "extension" and "motion."

2. These facts do not justify the denial of objective existence to the secondary qualities. These qualities are revealed to us by sense just as are the primary ones.

But, with these facts before us, what are we to say about the doctrine that the world external to mind has not the great variety of qualities that are called secondary, the doctrine, in short, that these are purely subjective, or, again, merely states in our mind, that is, merely the result of impressions given to our brain by a world composed of moving particles of matter, but not forming any element of that matter? Do the facts justify those who teach this?

Clearly the facts are against them. They are against them because the same senses that reveal to us the extended moving things reveal to us, also, the colored things, and so on, and because the only difference between the two classes of revealed qualities is in the degree of permanence and variation. We ask them by what right do they identify a permanent quality with an objectively real quality and a variable quality with a merely subjectively existing quality.

But they will make this reply: Surely you do not mean to say that the sweet taste of sugar is a quality of the thing sugar. Surely sugar has a sweet taste only when it is the stimulus of certain nerve endings in our tongue. Would there be sweet-tasting things and fragrant things were there no tongues and noses in the world? Surely things smell and taste only when affecting our mind, that is, coming into a certain definite relation to it. Yes, we reply, what you say is true enough, but does not give you the right to draw any such conclusions. Things do not taste sweet to us unless we taste them; things do not seem fragrant to us if we cannot smell them. But did this warrant us in denying the objective existence of these qualities, how should we be better off when we came to the primary qualities? Things have length, breadth, and thickness for us only as we see or touch them. Because we have to make use of our organs of sense before we can perceive a quality, or because we have to conform to the way in which an organ can alone be stimulated, all this proves no more than that to perceive a thing our organs of sense must be stimulated. This fact militates just as strongly against primary as against secondary qualities. The only point our opponents make against taste and smell is their lack of permanence, their variability as part of the content revealed to our minds at any given time: in short, that the requirements of our organs of sense are more stringent in their case than in other cases. They are tasting and smelling objects to us only under circumstances occurring comparatively seldom. Therefore their argument amounts to but this: The instances when sugar tastes sweet are indefinitely few in number compared with the host of instances of sugar in the whole realm of nature; hence sugar is really not sweet-tasting, but only causes, under definite conditions, a mental state in us called sweet! This is a fallacy, a complete *non sequitur*. More is in the conclusion than the premises warrant. From these premises we can only draw the conclusion, sugar as revealed to us is seldom actually sweet-tasting; it is such only when brought into contact with the tongue.

3. The world of primary qualities is made up of mere abstractions and cannot be pictured by us in the concrete.

But there is another criticism of our opponent's doctrine. How absurd to say that these objects about us have no other quality than mere extension. Such an object was surely never seen or perceived by any child of man. How can our opponent picture to himself any such object? Everything we do imagine in visual terms must have color of some sort, or in tactual terms must have more than mere extension: it must have hardness or softness, smoothness or roughness, and so on. Such objects would not even form a world of ghosts to us, for it would be a world beyond any power of our minds to picture. Surely our opponents have tried to construct a world out of sheer abstractions. It would be just as reasonable to say the world is composed of an infinite number of geometrical points or lines or any other ghost of an abstraction. The real concrete world, then, is a world not of ghosts or abstractions or of primary qualities, but a world infinitely rich in qualities. One and all belong to that world, and make it a world of indefinite variety.

III. The true significance to science of the distinction between the primary and secondary qualities.

But are the physical sciences not right in making the distinction between the two classes of qualities, and are they not justified in disregarding in some ways the secondary qualities? Yes, is our answer to both questions. Let us consider each question in turn.

Perhaps to the traveller nothing is more confusing than the strange monetary system of a foreign land. At first it is always necessary for him to convert the pounds or shillings, the francs or the marks or other denominations, into their equivalent in the familiar money of his own land, for this represents his standard of measurement. Or, again, how confusing it is to us that use the Fahrenheit thermometer and are not familiar with the Centigrade to have the temperature given in the strange terms, or, still again, to hear of centimetres, litres, or grammes. Our first impulse is always to convert them into terms of familiar standards. In fact, we have to do this if we are to make comparisons that mean anything definite to us. A similar principle in arithmetic has to be learned by the small boy at school. He cannot add ten chairs and three tables, nor can he subtract five apples from six pears, nor can he divide into an even number of wholes eleven potatoes and seven turnips among three people. He is told that he must make the different objects truly commensurate; that is, calling the chairs and the tables each a piece of furniture he can add ten (chairs) pieces of furniture and three (tables) pieces of furniture.

1. To be comparable, objects must be made members of the same class, or in terms of arithmetic commensurable.

From all this we learn the following lesson. To make arithmetical or geometrical comparisons we must make objects commensurate. Thus, if I want to compare a ton of coal and a cord of wood arithmetically I could measure their respective bulk, I could measure their weight, or I could measure the respective amounts of heat each might produce. But supposing I wanted to compare a cord of wood, a ton of coal, a pound of dynamite, a boiler full of steam, a red-hot cannon ball, a waterfall, a wound-up weight, the spring of a set bear-trap. Of course I could try to measure their bulk, but no doubt the reader has noticed a more satisfying means of comparison. We can measure the amount of work they will do, or their potential energy.

The primary qualities, as the universal ones, are the means of making all things comparable.

But supposing that we wish to compare not merely these few things, but all material objects and their changes; we then find that the ultimate terms of comparison are length and breadth and thickness, or extension, for the things themselves; and units of duration, or time multiplied by distance, for measuring their changes.

Notice, all changes are not motions, but to make all changes commensurable we have to reduce each to, or to associate each with, an appropriate motion. All material things are not in the totality of their existence mere bulk or extension. They have vastly more in the way of quality than this. But to make all material things commensurate we have to reduce them to bulk and to motion. Thus it is that we have to reduce nature to so much extension and motion in order to make all things and qualities arithmetically comparable. But here it may be asked: Why can we not compare all things and their qualities in some other terms than common arithmetical units? To this we can reply only that no other common properties besides bulk, motion, and duration can be found. We cannot choose color, for though it be true that all visible things have color, some properties are invisible and are, therefore, incomparable in terms of color with visible properties.

But, again, the material things about us are constantly changing, and how are we to make their "new selves" comparable with their "former selves"? Gunpowder exploded is something more than the few remnants of black ashes; it is also the gas set free and expanding in an indefinite number of directions. How are we to compare the non-exploded with the exploded gunpowder, or how, similarly, the water with the hydrogen and oxygen gases we get by analyzing the water? Clearly we cannot do so except in terms of some common property, and then a system of arithmetical units will be at least theoretically possible. In short, the whole tendency to divide the qualities into primary and secondary is due to the need of having a better system of comparison, a system admitting, to a greater and greater degree, of measurement. The primary qualities universally found in different things and in things changing from one state to another admit, theoretically, and often practically, of arithmetical comparison throughout. Such comparison would be impossible did we continue to deal with the secondary qualities. Hence we see the fallacy of those who maintain that the secondary qualities are not real. They practically tell us that because we have to reduce tables and chairs to pieces of furniture in order to compare them, there do not exist tables and chairs, but only pieces of furniture.

2. The place of the secondary qualities.

But there remains another very important problem. What ultimately is to be done by science with the secondary qualities? For exist they certainly do, and therefore cannot be ignored. In short, if science is to fulfil its ideal, it must be a science of all properties, not merely of the primary. In fact, we ask ourselves what would form the ideal science from the point of view of the present problem.

First, we have a fact with which every one acquainted with the progress and tendencies of science in our century must be familiar. This fact is, that all sciences are

The movement of all the special sciences toward physics; and its significance.

tending toward physics, and physics attempts “the systematic exposition of the Phenomena and Properties of Matter and Energy in so far as these phenomena and properties can be stated in terms of definite measurement.” Largely, in the words of Dr. Daniell, “Chemistry is but a colony of facts closely related to one another, and classified by us on principles which depend almost entirely upon our ignorance of the fundamental nature of the relation between those apparently different Forms of Matter which we know as the various Chemical Elements; and the consummation of Chemistry, a full and accurate knowledge of the inner mechanism of all chemical reactions, would probably result in the absorption of all Chemistry in the wider science of Molecular Physics. In the meantime the fundamental unity of the two nominally distinct sciences, Chemistry and Physics, is shown by the extent to which they overlap one another in the field of Chemical Physics.” That is, as Chemistry advances it pushes its way toward Physics by trying to reduce chemical phenomena to phenomena that can be stated in terms of definite measurement.

Likewise Physiology, or, “in a wider sense, Biology, is concerned with the matter and the energy of living beings; and if it ever come to attain its highest ideal, even Biology must thereupon merge in Natural Philosophy (*i.e.* physics). Already we see that while physiological research is steadily conquering the unknown, that which it succeeds in thoroughly explaining falls out of its grasp and comes to form a part of ordinary physical, or, it may in the meantime be, of ordinary chemical knowledge.”

We would here add a like truth concerning Psychology (a truth that must be defended later on and not here). The tendency in psychology is toward nervous physiology. This does not mean that mental states are identified with nervous changes or molecular disturbances in the protoplasm of neurons. But for some reason, good or bad (and we think good), the psychologist feels that he could explain association, memory, and the content of perceptions or ideas better if he could but work out a molecular physics of the brain cells and axis-cylinder processes. This is the ideal toward which he strives. The same may be said of Sociology. Thus we have one science after another pushing its way toward molecular physics; and the explanation of this is that the scientific need for exact measurement can be met only when different properties are reduced to a commensurate property. Now the ideal province of physics is just to interpret the world of nature as far as it consists of properties and phenomena admitting of definite measurement. In short, the tendency of present-day science seems to inform us that the ideal science of society, mind, life, and chemical phenomena, would be a physics of them all.

The justification for this we have already considered. All these phenomena are too intimately related, as any text-book in any one of them will show, for us to attempt to keep them apart and discuss their problems as though the phenomena of society, of economics, or of chemistry formed a little world by themselves and could be really known by one refusing to know any relation between them and the larger world without. No part of the world, then, is sufficient unto itself. You cannot have a highly civilized, densely populated community on an island where there are no resources, such as fertility of soil, mineral wealth, fishing ground, commercial value of locality, or industrial value of some form of stored-up energy, such as coal or a waterfall. In short, society in some way depends upon the physical and chemical character of the habitat. So, likewise, life depends upon food, air, water, and heat. Mind depends on a nervous system and its organization; and these in turn depend on food, heredity, and so on. Heat and light cause chemical changes, and chemical changes cause physical changes.

From beginning to end the things of nature, their changes and their properties, are interrelated. Therefore we must find some ultimate properties in terms of which we can compare them and measure them. These properties are the primary ones, and to the primary ones, therefore, science will have to go.[1]

But this movement toward physics dare not identify the two classes.

But here philosophy cries out, "Beware." No amount of convenience will ever reduce one quality to another in the sense of identifying two things that are different. To identify color and ether vibrations, to call a sensation the very same event as a molecular motion in a brain, is sheer nonsense and naught else. In short, cries the philosopher, you scientists are no doubt justified in making physics in part your ideal; but beware, only in part. The real world that you attempt to interpret is a world infinitely rich in qualities. It is not the world of the primary qualities, but the world of both primary and secondary. The secondary are there; they are real, and, as such, they demand an interpretation.

Reduction of the secondary to the primary qualities does not mean identification.

Therefore the secondary qualities still remain to be interpreted.

What then will form the ideal of science from this point of view? As we shall see later, the work of science and all knowledge is to discover the laws of the world; and we mean by laws the uniformities of coexistence and sequence. That is, science is called upon to tell us under what necessary conditions, or circumstances, any given thing, quality, or change will be found to exist. These conditions, or circumstances, must of course be made up of other things, qualities, or changes; and, further, they must either precede or exist along with the thing, quality, or change whose law we seek. Hence the answer to science's questions would be to tell us of all the laws of nature or all the uniformities of coexistence and sequence

We must find the relations obtaining between the primary and the secondary qualities, and the relations between secondary and secondary through the medium of the primary.

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[1] Without trespassing upon the field of physics, this seems to refute the position taken by the so-called "Energetik" school as a final or ultimate view. But the conflict between the two positions seems, to an outsider at least, superficial and therefore reconcilable.

in nature. Now, even if science had succeeded in determining all the uniformities of coexistence and sequence among the primary qualities, there would still remain a problem ere she would have fulfilled her ideal. She must not ignore the secondary qualities, but must then find the laws of uniformity between the primary qualities as such and the secondary as such.

Perhaps the statement will be clearer if we give an imaginary example. Supposing our information to be adequate and the following problem to be given us. If we mix these various pigments and let a given amount of sunlight fall upon them for a thousand hours, what will be the resulting color? First, we shall have to ask ourselves (of course our hypothesis of adequate information must be kept in view throughout), What is the exact coexisting state of affairs among the primary qualities, or the accompanying purely physical circumstances? These and likewise all other conditions being given in terms of physics, we should have a purely mathematical problem to determine the result in physical terms. When we have gotten this, we must inquire, What secondary qualities, or color would be the result, namely, would coexist with precisely these physical conditions. Thus, in an ideal state of science, in determining the law of relation between two sets of secondary qualities, we should first determine the uniformities of coexistence between each set and their physical accompaniment, and then determine the law obtaining between the two sets of physical phenomena. This would show in the presence of what conditions, namely, secondary qualities, other secondary qualities would make their appearance.

In short, the ideal of science would be to know all the uniformities of coexistence and sequence between physical phenomena and all the uniformities of coexistence between physical phenomena and secondary qualities, and then to be able to calculate, by means of our physical knowledge, the uniformities between secondary and secondary. The complete tendency of science is not merely to reduce all secondary qualities to primary or to physicize all science, but to determine sociological, biological, and chemical laws by means of physical laws. An ideally complete physics would enable us to calculate the future with exactness. Therefore, could we but determine the uniformity between the other phenomena and the physical, we should have in physics a means of calculating, with like exactness, the future of society, of our bodily states, and of chemical changes. The ideal of science, then, is to learn completely and exactly all uniformities of coexistence and sequence between all phenomena; and the means to do so is an ideally perfect physical science and an ideally perfect knowledge of the relations between physical and other phenomena. And all this is true because physical phenomena, or the primary qualities, lend themselves directly to mathematical calculation as the secondary qualities do not. The primary are commensurate and the secondary are not, hence our result.

IV. All this leads us toward the Mechanical Theory as an Ideal of Science. A Summary of this theory.

Reducing as science does the secondary qualities to primary, and picturing the world as a world of primary qualities, we get the so-called mechanical theory of nature. The mechanical theory we may sum up briefly as follows: —

The fact that the primary qualities are constant makes it possible to reduce all their changes to the movement of constants. This fact has enabled science to apply mathematics most successfully to all the phenomena of the physical world. There has thus been built up a mechanical theory of matter based on the axiom that the motion and mass of the universe are constant, and that mass undergoing motion obeys the law of inertia. Moreover, any given mass of matter is of course, since it occupies space, an aggregate of smaller masses of matter. As a consequence, we find science trying to determine what are the ultimate components of any given mass of matter. This ultimate component was called in the ancient world an atom, or indivisible particle. We feel that in spite of our inability to analyze the chemical atom, still, theoretically, it is composed of parts, and that if we could discover these parts we should be able to reduce the present seventy or more elements to a smaller number, and perhaps ultimately reduce them to one. But in that case what would become of those characteristics which now differentiate one element from another? The answer to this question is: Just as the qualities of the object revealed to our senses are reduced to the activities of the chemical atoms or to the vibrations of imponderable bodies, reflected by these atoms, so now the qualities of the chemical atom will ultimately be reduced to different arrangements or motions of the ultimate atom. Thus we would picture a world composed ultimately of one type of matter; and all differences of quality that appear to exist would be reduced to motions and arrangements of this ultimate entity. In this way nature ceases to be anything but mass and motion, and therefore a system all of whose changes may be expressed in mathematical terms. And the atom of chemistry is but a combination of ultimate physical atoms. Just as those qualities that distinguish one chemical element from another are reduced to quantitative changes, so also, when we come to distinguish between the inorganic and the organic world of life, are the unlikenesses that science finds here, reduced in like manner to differences in some common element. In this way science has come to the conclusion that there is no true gap between the organic and the inorganic any more than there is a gap between one chemical element and another; all the transformations of the world and all its richness in qualities are reduced to quantitative relations in one ultimate form of matter. Now, since there is ultimately but one form of matter going though various transformations, it must follow that all changes in the universe are but changes in these transformations; and that therefore, however complex the result may be, or may seem to be, it could arise wherever the given transformations themselves could arise. Life, and the highest forms of life, can thus be conceived merely as very complicated forms of the simpler types of physical manifestations that we find all about us. The passage, then, from star-dust to the brain of man is merely a change in the arrangement of particles of matter. The doctrine of evolution made possible by this view has in truth been formulated. In this formulation we are told that the cosmic dust has become integrated, and in so doing has undergone a rearrangement of its parts. Thus have arisen our solar system, the transformations in the surface of the earth. Thus have arisen the vegetable and animal worlds. Thus has arisen the complicated nervous structure of the higher vertebrates, including man. Thus too have arisen the phenomena we call social. All these changes are but the rearrangement of particles, and all follow a general law by which the objects whose changes they are become more complicated in structure, grow old, and, in a process of dissolution, lose their complicated structure, and so pass away.

We have now before us a general picture of the world of nature as portrayed by science. A great mass of qualities are set aside by science because of their non-permanent character, and the permanent characteristics are identified with the changes of fundamental entities. So the world is composed of substances undergoing an infinitude of changes, but throughout these changes retaining certain permanent characteristics. This world exists in a boundless space and extends backward and forward through the course of infinite time.

CHAPTER V

THINGS AND THEIR QUALITIES: SUBSTANCE[1]

THUS far we have been talking of qualities, and have said very little of the things that have the qualities, or in which the qualities inhere. Yet it is a very serious and difficult metaphysical problem to answer precisely these questions, What is meant by a thing and its qualities? and what is the relation between the two? However, we need not concern ourselves at this point with the problem more than superficially, for we shall fulfil the needs of our present discussion by talking of things and qualities just as we are accustomed to talk of them in everyday life.

The world is made up of things; and to be a thing means to lead, to some extent at least, an independent existence.

The world of nature is made up of things, and each thing has an indefinite number of qualities and may be studied from so very many points of view that to explore (to use a more inclusive term) all its characteristics seems an endless task. Sometimes it gives us some trouble to determine just what is required to make a thing a thing; and often no doubt the use of the term 'thing' varies in many ways. In general, we may say that a thing is some being, or reality, that can be separated from others and considered by itself. The word seems to imply a sort of independence. As we look out of our window we see the trees, the houses, the horses, the men, the stones, the fences; and we call them things. Evidently a house or a horse, a man or a stone, is a thing because there is present a certain cohesion of parts or because we can change its location without seriously altering either it or any of the surrounding things. They stand out so distinctly from the remainder of what we see, they are so independent. But when we turn our attention elsewhere, the difficulty of determining whether something is a thing or not increases. As we look from our window the lawn is a thing by itself, but somehow it is harder to call each blade of grass a thing. From a distance we are rather liable to regard the whole grass plot as the thing and each blade as only a part. Still, if we plucked a blade we should surely look on it as a thing all by itself. To take another example, we can hardly separate a puddle of water except in thought from its surroundings. But still the fact that we can do so, justifies us in calling it a thing. Yet why stop here? It is composed of thousands and thousands of drops of water that fell as rain upon the ground at that point, or near by. Such drops of water we can now take from the puddle, and each looked at and considered by itself seems to have just as much right to be called a thing as the puddle did. Yet, again, why stop here? We might analyze the water chemically; and we are told the result would be a large number of so-called atoms of hydrogen and oxygen in the form of two gases. But is not each of these atoms a thing, if we consider it all by itself? We have to answer, Yes. Thus we come to a conclusion something like this. We are at liberty to divide up the world in all sorts of ways and consider each part a thing by itself if that part be of sufficient importance to be made by itself the object of our thought or attention.

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[1] The topic of this chapter will be considered more critically in a later chapter (XXV). In this chapter we keep very close to the popular view of nature.

This independence of existence means that we can distinguish it from

But what is it that gives the thing its independence or that enables our minds to consider it by itself? Clearly it must be the fact that we can distinguish the thing in some way from other things. This we can do by finding some difference between it and them in quality. Or we might employ their difference in location either in space or in time. Thus, I may have on a table two billiard balls exactly alike, as far as my eyes tell me; but I can easily distinguish them by their positions on the table. You might mix them up when I am not looking so that I could not tell Ball A from Ball B. But even in this case I should at once make a new distinction on the basis of their new positions, and should not for a moment be in doubt whether to call them two things or not. Likewise we may distinguish between two things by their location in time. Are the leaves now on the trees the same as those there last year? Clearly not, even though I can distinguish them only in time. The fact that there were leaves last year, the fact that all those leaves fell off the tree in the autumn and remained off during the winter, and, finally, the fact that these new leaves started first as buds and gradually grew and expanded into leaves, these facts justify us in distinguishing the leaf of to-day as a thing by itself distinct from the leaf of last year. Thus we distinguish things by their qualities, place, or time; and we find in this distinction the proof of their independent existence. It is in this way we can regard each by itself, making each a distinct object of our thought.

other things through its qualities, location, or temporal existence.

Still all this does not quite satisfy us. The thing is more than the mere qualities, it is more than mere location in time and space. It is, besides all this, in a peculiar sense the possessor of the qualities. They belong to it, they inhere in it. Apart from it they could not have any being. Who ever saw the red color run away from the flag and exist merely as a quality all by itself? Color is always a quality of a thing, and is itself never a thing. Heat likewise, so also length and duration. The thing is long, or the thing lasts long. The thing moves. Who ever saw a motion that was not the motion of a thing?

Yet there is another distinction possessed by all things. They are substantial.

So we cannot say that the thing is exhausted when we tell its qualities and relations; there is some other

Their substance determines their qualities.

element in it, to make it what it is. This other element is substance. Every thing is a substance and it has the qualities it does have because it is just the very nature of that particular substance under those particular circumstances to have just those qualities. Thus we ask of what substance the house yonder is made. We get the answer, wood or brick or stone, and at once attribute to the house certain qualities belonging to such a substance. So likewise if we ask of what substance is this ring. It may be brass, gold, silver, iron, or what not; and it will have qualities accordingly. In fact, a better way of expressing ourselves would be to say, that it is only by a study of the qualities of a thing that we determine its substance or substances; and, in a rough way, we mean by the substance that which, figuratively speaking, lies back of the qualities, that in which they exist, or, better, that which gives them their existence, that without which they would not be.

This is clearly implied in the chemical composition of things.

As has been already stated, the realm of ponderable nature has been found by chemistry to be made up of about seventy distinct chemical substances, or elements. As a consequence, all things have the qualities they have because of the substances of which they are chemically composed, and because of the action of imponderable or non-chemical entities upon the things in question.

But whither does this conception of Substance lead us? Substance as the determiner of quality leads us by analysis to one universal substance in nature, *i.e.* Matter.

But why have we come to regard these elements as substances? In older days the substances were believed to be earth, air, fire, and water. Why did we give up calling these substances? Evidently the answer is, We could analyze them, that is, we could separate them into parts each having different properties from those of the original earth, air, or water. Or, on the other hand, we have been able to identify two seemingly different phenomena, and so to regard them as manifestations, or activities, of the same substance or substances. Thus fire has come to be for us only a manifestation of light connected with certain forms of oxidation. Thus, could we but analyze oxygen or any other chemical element, we should cease to regard it as a substance on the same plane as heretofore. Of course we do speak in a broader sense of substances, including brass, clay, chalk, lime, paper, wood, or any general type of thing having qualities. But the tendency is to regard as true substances only such as resist all further analysis. Yet even here we do not find a true stopping-place; for although the chemical elements resist further analysis, still we believe that they are compounds, or theoretically analyzable. The belief arises, that could we but discover a method of analysis, we should be able to reduce the number of chemical elements perhaps even back to one general element, and that all other elements are various combinations of the atoms of one such primitive element, just as objects about us are various compounds of the chemical elements. So, finally, we come to the belief that there may be ultimately but the one true primary substance back of all the secondary substances, and this substance we call matter.

But let us see the consequences of our analysis. We have found that as the result of chemical analysis a great many of the secondary qualities are regarded as merely apparent; that is, could we take all the qualities of the seventy elements, we should find a vastly less rich array of quality than we actually find now existing in the world about us. Further, could we reduce the number of elements, we should expect to find, in turn, the new elements less rich in qualities than the old. In short, could chemistry reach its ideal we should have a substance, or chemical element, having only the primary qualities. Thus, as we have seen, we should have chemistry turn, in part at least, into a science of molecular physics. Still otherwise put, the ultimate chemical element promises to be the abstract matter of physics, a substance having only the primary qualities, a substance having extension and undergoing motion.

But Matter itself is a mere abstraction, still a justifiable one.

Thus we may conclude that the substance of the world of nature is matter, and that all secondary qualities may be reduced to differences in the primary qualities. But this result raises for us, as philosophers, a very serious problem. What have we to say about this substance, matter, this substance to which belong all the qualities of nature, or, if you will, of which all nature is but the manifestation. Our discussion of the primary and secondary qualities has already shown us that in and for itself no such thing exists as this abstract matter with only the primary qualities. The real world, the world that is, is the world revealed to our senses with its indefinite richness of quality. The secondary qualities are there and they exist, and hence no reasoning of ours can make them aught but part of reality.

But we have seen that science tends, for very good reasons, to disregard the secondary qualities or to study them in terms of primary qualities. Thus it comes about that science has built up only a convenient abstraction in its conception of matter as deprived quite of the innumerable secondary qualities. Yet, as we have seen, science is justified in so doing; but it were false science indeed, did we forget that we are considering only a part, and not the whole. The real matter, or substance, of the world of nature is thus one that manifests itself in an indefinite richness of quality; and therefore the matter of the physicist is a mere abstraction that is only a means of studying certain general laws of the real matter, this bearer of indefinite qualities. Hence this conclusion: the matter of physics is only an abstraction and not a reality. But do not for an instant think that this means a questioning of the truth of the results of physics. Not in the least. As we saw, physics has to deal with abstractions. The matter of physics is matter robbed of all but its universal, or permanent attributes, and its other attributes are reduced to, or expressed in, terms, of variations in the permanent attributes.

Should we then discard the theory that nature is composed of one substance, — matter, — and go back to the view a long time held that there are several substances? Clearly not. Substance has come to mean for us just that which resists our ability to analyze; and did we return to the other view our quarrel would be merely one of words. There are things that we can analyze in the chemical laboratory; then there are things we cannot. Again, these very things, although chemically elements, are not physically to be regarded as unanalyzable. Finally, only that is unanalyzable, or irreducible to something having different properties, which has been so robbed of all its qualities that only necessary or universal ones are left. This and this alone can be substance in the sense of the unanalyzable. On the other hand, however, we should do wrong did we come to the conclusion that nature is in reality that ghostlike world of physical abstraction. Such a conclusion would be as absurd as to say that the real world is only that which is described by our text-books of geometry.

CHAPTER VI

THE ATOMIC THEORY[1]

All material things divisible into parts.

RIGHT in connection with the question of analysis we come upon another philosophical problem. The word "analysis" may be used in the different sense of division into geometrical parts. Thus we find that we can divide an apple indefinitely by a chopping machine. In the chemical laboratory we can carry on the division still farther. In this way the whole ponderable world has come to seem to us theoretically divisible, not merely into the elements oxygen, hydrogen, and the others, but into those little particles of oxygen and hydrogen that are called atoms. Thus we are told the ponderable world is made up of atoms. Moreover, we must not here forget the imponderable world, — the world of the ether. It, too, must be supposed to be made up of particles. In fact, the chemical atoms themselves may be regarded as highly complex, that is, composed of more primitive atoms. No doubt physics may finally adopt some such theory of the chemical atoms as Lord Kelvin's vortex theory, or some theory attempting to explain the properties of the chemical atoms out of the complexity of their structure.

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[1] *Literature.* For History of the Atomic Theory, cf. Chapters XXVII and LVII.

Paulsen, Introduction, pp. 145–158.

Weber, History of Philosophy, pp. 55–58.

Stallo, Concepts and Theories of Modern Physics, Chapter VII.

Lasswitz, Geschichte der Atomistik. 2 vols. Hamburg and Leipzig, 1890.

Lange, History of Materialism. 3 vols. Translated by E. C. Thomas. London, 1878–81. (Geschichte des Materialismus. 6te Aufl. Bearbeitet von H. Cohen. 2 vols. 1898.)

Has this divisibility a limit, and what is its significance?

Here we, as philosophers, step into the argument, and ask: What if physics should be able to reduce all known physical phenomena to the motions of certain primitive, or ultimate, atoms; would physics rightly rest satisfied at that point, or may there not be here some deeper principle that is impelling the physicist toward a never ending process of division? Let us see.

The purpose of the division is explanation.

Why does the chemist go beyond the ancient thinker in dividing things up into chemical atoms? The answer is, Because by so doing he can *explain* certain phenomena that the ancient thinker could *not explain.*

We have just emphasized the word "explain." What does it mean? We shall have to wait till later in our discussion to determine its full meaning; but at present let us say, that to explain a phenomenon is to account for it by bringing it under some general law. Thus, to explain why wood will burn under conditions where stone will not, we give the chemical composition of wood and appeal to certain laws holding of such a compound. To explain why we need to breathe air in order to live, we show how the vital processes are all a form of oxidation, and that the air forms the chief source for supplying the oxygen necessary to perform this work in our body. But to return, we divide things up when we can by so doing get at things, or atoms, that obey a more general law than did the unanalyzed thing; since in this way we can account for the phenomenon in question by showing that it is an example of the general laws true of the thing's constituent parts. Thus, when we know that our nerve centres have a large amount of energy held in unstable equilibrium, and also that gunpowder and dynamite have the same, we account for this, in part, when we learn that they are all rich in the element nitrogen and that the presence of this element accounts, in part at least, for the large amount of energy.

Now let us see from all that has gone before what will be the tendency of a progressive explanation of nature's phenomena. Sometimes it is enough to say the explosion was caused by gunpowder. The carpet was faded by sunlight. The water boiled because it was put upon the fire. The man died because his heart stopped beating. A certain country is populous because of the great fertility of its soil. But the moment we want more accurate explanations, we keep asking, why does fire boil water, why do we die when our heart stops beating, why does gunpowder do such damage? The answer to such a "why" is always an appeal, as we have just said, to a more general law. Sooner or later our "whys" bring us to those laws we call chemical laws, or toward them. But when we have reached chemical laws, what next? Why do oxygen and hydrogen have such an affinity for each other, and so on through "why" after "why" that the chemist sooner or later has to ask himself. Why does this element behave thus, and another so? The answer to this question can be only in terms of some more general law, namely, a physical law. But to be able to secure that answer, the chemical atoms must be split up into more primitive atoms, just as our body, or the gunpowder, or the water, had to be split up into chemical atoms to have their conduct explained in terms of chemical laws.

This division must continue as long as we seek explanation.

In short, we have to regard an object that must be brought under some higher law to explain its activities as composed of atoms of some sort. In sociology the atom is the individual human being, especially the individual mind. Therefore the sociologist goes to the general psychology of the mind to find the more general laws that are to explain social phenomena. Again, the conduct of human beings is directed by their nervous systems. We analyze the nervous system into parts, or "atoms," in the neurons; and we believe that were our information about these neurons sufficient, we could bring all direction of muscular contraction under the general laws of the activity of these neurons. Likewise, in biology, could we only work out the chemistry of all forms of protoplasm, we should be able to explain all vital phenomena through the more general laws of chemistry. But now comes chemistry; and we try to push it under physical laws, and to do so we must divide up the atom. In short, *to reduce to a more general type means to divide into some sort of atoms;* and the process will theoretically never stop until we have reached a world in which the "atoms" are all alike, act all alike, in which all variety of activity has completely disappeared. The moment one activity is different from another we shall raise the question, Why? Then will have to commence again the work of analysis; and we shall have to divide into parts or seek for some more primitive atom.

Further as long as one object differs from another their structure will be a problem.

Moreover, if our atom ever acts differently on one occasion from another, we shall again have to ask why, and again we must have more primitive atoms. Thus the only true atom will be one like every other atom in the universe, that acts like every other, and always acts in the same way. In short, we shall theoretically be able to stop only when our reduction has removed all differences from nature. Therefore the ultimate atom is that thing whose activity is an example, and only an example, of the most general kind of activity in nature.

Likewise any object with internal activity raises the problem of structure.

Then again, there is another point of view from which we may regard the nature of the atom. Any body that has motion taking place within it at once raises a problem, namely, calls for an explanation of its internal structure and the resulting activities. For instance, a watch calls for an explanation to a greater degree than does a pebble because of its internal movements — to a greater degree just because its motions attract our attention. So, also, with a living human body. In a similar way, the moment that we realize that a chemical atom is not merely a sort of football thrown about by other atoms, but that it has activities all its own, and that these activities seem to be more than merely a passage of the whole atom back and forth in space, in short, as soon as we believe that activities take place within the atom, we at once feel drawn into a new problem, namely, a problem of structure. If a chemical atom never had any internal activity, if, in short, its internal structure played no part in chemical phenomena, we should neglect the problem of internal structure — for the world at large would be just as well explained as if we attacked it and solved it. But the question at once arises, Can we ever find an instance of activity in the whole realm of nature in which the internal structure of each body taking part in the phenomenon does not play some rôle? Surely, in as far as all matter is elastic, it does play a rôle, and thus there is a problem of structure.

Now what do we mean by a problem of structure? We mean, ultimately, that activities are taking place within the body that demand explanation; and explanation always means, as we have seen, that we must seek for some higher, or more general, law or laws under which we can put the activity in question. But searching for such a higher law is, we have seen, after all doing nothing more nor less than splitting up the given body into parts, studying the motion of each part by itself, and regarding it as an instance of the working of the higher law. Thus, wherever there is any internal activity we must, theoretically, refuse to find a true atom. The true atom therefore has no internal activities.

Thus the ultimate atom must have only a simple activity and no internal activity.

Thus we find two general truths concerning the ultimate atom. Its activity must be, in the view of our intelligence, a simple activity, namely, an activity that is only an example of the most general kind of nature's activity; for any other activity we should tend to analyze into a more general one. Secondly, the atom must have no internal activity. Such is the true atom toward which science tends, and no other atom will wholly suit the demands of our intellect for a complete explanation.

This implies indirectly that the true atom is only the mathematical point.

Yet right here comes up a new problem. Supposing any body or particle of matter has length, breadth, and thickness, but has not, as far as the most delicate observation finds, any internal activity; should we rest satisfied that this particle was in truth a real atom? We should no doubt have to answer, No. We should never theoretically rest satisfied that no internal activity took place within it. We should always be on the lookout, and the mere negative evidence, "No activity yet in sight," would never theoretically release us from further search. Our atom would be practically a true atom for all scientific work or explanation, but always an object of theoretical suspicion. We should be ready any day to get the news that some internal activity had been discovered. In fact, then, our intelligence would never rest assured of the non-existence of internal activity so long as our atom did have any length, breadth, and thickness. Therefore the theoretically true atom must be a mathematical point. Anything else raises the question of parts and, therefore, of internal activity, or motion, between these parts, and the mathematical point alone is free from every suspicion of internal activity.

Does this disprove the atomic theory? Not as a mere instrument of explanation.

But is this the *reductio ad absurdum* of the atomic theory? We answer, "*By no means*," but add the qualifying clause, "In so far as it is an instrument to analyze and explain, or bring under higher laws, the activities of nature." It is, however, the *reductio ad absurdum* of the atomic theory in case we mean thereby a full description of the actual concrete world.

So much for the justification of the atomic theory as a formulation of nature's laws. What next do we say in opposition to the atomic theory as a description of the facts in their totality, as actually existing concrete facts

Only in case the atomic theory claims to be a description of the concrete thing.

of indefinite variety, richness of content, and change? There are two quite fatal objections to the atomic theory in this latter use. First, can we actually build up the real world revealed to our minds out of atoms, with nothing else assumed? In short, can nature really be made up of atoms and nothing more, or is there not something more that is not contained in the atomist's premises? Secondly, can we rightly grant the atomist even as much as our first objection allows? Does there and could there exist in very truth such a thing as an atom?

1. The qualities of things can never be the mere arithmetical sum of quantitative characteristics, or atomic properties.

Let us consider the first objection. Grant him his atoms, what then? We have simply a case something like this. There on the lot lie heaped a great pile of bricks, barrels of cement, lime, sand, stones, boards of all sorts, lead pipe, slate, shingles, doors, and other pieces of woodwork. Now let us see you construct the house. Ah, you say, all we have to do is to set the artisans to work and the house will be built. But hold! All we granted was the material. Now let us see you make up your house or your world. You can't do it. A house is not merely bricks, woodwork, and mortar. It is all these in very definite relations; and if you are merely given the material without the intelligence and power to bring that material properly together, you will never have a house, not in the wide world. A house is not a heap of bricks, nor is a world a heap of atoms. There are thousands of characteristics and qualities in a house that no mere heap of bricks has. The world is an indefinite system of relations that no mere heap of atoms possesses. In our atoms we have the simple activities, say *a*, *b*, *c*, *d*. Now an indefinite multiplying of *a*, *b*, *c*, *d* does not give you more than *n* times *a*, *b*, *c*, *d*. It does not give you the activities *x*, *y*, *z*. Or to take a concrete instance. Our opponent asks, Can we not unite atoms of oxygen and hydrogen together and have water? Can we not do it, as a matter of fact, right here in this our very laboratory, right here in this jar on our table? But, Mr. Opponent, not so quickly! There is a serious ambiguity in your question. Remember, in one sense both you and we are equally atomists. You can make just the experiment you suggest. We have as little doubt about that as have you. That the chemical laws hold of nature, and all ponderable bodies therein, we are no more disposed to doubt than are you. That, however, is not our question. We ask, Will the water be merely the arithmetical sum of all that you have in the jar? We answer, No, for otherwise there would have been water there from the very beginning, inasmuch as we granted you all your material at the start, just as we granted our friend the builder all his bricks and mortar. Now we are not merely quibbling with words, so please do not make that unjust accusation. Our one question runs, Is the water merely so many atoms of hydrogen and oxygen? If so, why do you have to do anything with the hydrogen and oxygen to make them water? Ah, you reply, of course we have to bring the hydrogen and oxygen and the electric spark into certain relations. But again we ask, Is water atoms of H + atoms of O + electric spark + their being in proper relations? Not a bit of it. These will cause water. Under these conditions you will get water. *But they are not water. Water has certain qualities that you and I know very well. Your atoms and so forth have them not.* All you have done is to bring water into existence, and in a similar way you can take water out of existence and have a jar full of H and O gas. But H and O gas may be the cause of water, but, as a sheer piece of ordinary common sense, are they water? No more than a heap of bricks or ten or more workmen standing about with their tools are a house. The house is the finished article. So is the water; and the finished article is very different from the material plus the forces and so on that may make up the cause of the article.

The atomic theory is a law holding of facts, but such a law holding of a fact is not a description of the fact.

Thus, as a law of nature, or, rather, as a system of laws of cause and effect, the atomic theory works splendidly. But as a description of the facts as facts, of the world as world, it fails utterly. Water is water, and not a lot of atoms.[1] You can by certain laws turn water into gases or gases into water. But in this case the water goes out of existence, and a very different fact, a fact, in short, whose description is very different, has taken its place.

The error, then, of the atomist from this point of view is that he has mistaken a law of nature for a complete description of nature. The laws of chemistry and physics hold of nature. Of course they do. But they are not and never will be a complete description of nature. Nature is more than what is described in our works on chemistry and physics. Nature is more than abstract laws.

2. Do atoms really exist or is the atom of necessity a mere abstraction?

But let us turn to the second objection. Are there in truth actually existing entities called atoms? Is an atom an existing entity or is it a mere abstraction?

Perhaps it will be easier for the reader if we state first what we do believe, and then afterward show why the other view seems untenable.

The entity is *atomic* not an atom; just as the real material thing is *triangular* not a mere triangle.

We all speak of triangles, of lines, of planes. Are there really such things? What is a line? It has no breadth or thickness. Did we, could we, ever see such a thing? Of course we have to answer, No. What we have seen are objects, such as telegraph wires, or railroad tracks, where the chief characteristic to which we give our attention and interest is their length, and accordingly we call them lines. So, also, we see this or that piece of land and call it a square, a circle, or a triangle. Do we really mean that it is only a triangle in the strict geometrical sense? Of course not. We mean its shape is triangular. That to measure its area we can measure its base and altitude and then multiply one by half of the other and get our desired result. In short, when we call this or that object, a line, a point, a triangle, we mean that certain geometrical properties are possessed by them; that certain geometrical laws hold of them. Or, again, to use a more extreme case, if we say, "There are five hundred present," we do not mean that what is present is a mere sum of arithmetical units. We mean that we can count men and regard each man as a unit. Thus, arithmetic and geometry deal with abstractions. There are in this world no such real entities, or things, as mere arithmetical units or mere geometrical triangles. There are things to which arithmetical laws can be applied, in short, that can be counted or treated as mere units. So, also, are there things in this world that are triangular, to which we can apply the results of our geometry. Things, in short, that we may call triangles. So when we call a plot of land a triangle, we do not mean to be taken in all literal seriousness. What we wish to do is to call attention to its shape, to name that shape, to posit certain laws of area as holding of our land looked at from this particular point of view.

Now we are not casting slurs upon geometry when we say it deals with mere abstractions; nor do we mean that its results are less valuable. In fact, as we shall see later, the very value of geometry, or any science, rests right in the fact that it deals with abstractions. But what is true of geometry is true of all other sciences, and especially true of the more abstract ones, such as physics and chemistry. They deal with abstractions, and the so-called atom is an abstraction just as is the triangle of geometry. It is not such a high abstraction; or, in terms of logic, it has as a concept more intension, or connotes more qualities. But none the less it is an abstraction. Just as there are in reality no such things as mere triangles, so, also, are there no such things as atoms, not even chemical atoms. Now this may seem an outrageous thing to say. But truly it is not; truly we are not, even to a hair's breadth, calling one physical or chemical doctrine into question, any more than we call geometry into question. But you ask, "If chemical atoms, or any atoms, do not exist, what does?" We answer: Just as there are triangular things; namely, things having the properties of triangles, so also are there things of which the atomic laws hold. We may call them atoms, but what we mean is, they are *atomic*. A mere triangle does not exist, nor does a mere atom. In the concrete reality we have triangular and atomic properties, but to forget that a piece of land is more than a mere triangle is no worse than to say that this object is made up of mere atoms. In reality it is vastly more than this; and should we forget this truth, we have turned a mere abstraction into a concrete reality, a mere ghost of a thing into the actual thing. Hence our conclusion: There are atoms only in the sense that these are things which obey the laws taught us by physics and chemistry. These sciences, like geometry, and like all sciences, treat of abstractions, and try to find out the laws of special properties considered by themselves, that is, abstracted from the concrete thing.

To serve the purpose of the atomic theory the atom must be a mere abstraction.

It remains for us to show that this is true of the atomic theory. Are atoms mere abstractions? First, we have seen that an atom is not merely a part, but differs from a mere part by having its own peculiar qualities and laws quite distinct from those of the compound, in whose complex structure it forms an element. We found that the atoms, or the final results of analysis, form a means of explanation only in so far as they have different, that is, in their case, more general, characteristics than has the compound. They are not merely parts in the sense a chip is part of a block; but they are parts in the further sense of being simpler structures entering into it. But here we have to ask, How does the chemist know that his atoms are simpler than the molecules? Supposing that we should maintain that the molecules, and also the atoms, were infinitely complex; how, then, could we compare two entities infinitely complex, and say that one is more complex than the other? Is infinity less when a million is subtracted? The question is really absurd. Two indefinites or two infinites are not comparable. But yet the chemist does know that his atoms are simpler than his molecules. How does he know? Simply because he is comparing the one with the other only along certain lines; not in every respect, for that were, as we shall see later, impossible. In short, he reduces all the varieties of things to different combinations of about seventy elementary things; precisely as we reduce written words to combinations of twenty-six letters, *a*, *b*, *c*, *d*, etc. His atom is simpler than the compound in which it occurs, because the compound contains it, and others also. Further, such an atom, like a letter, is simpler than the compound because the varieties of compounds are vastly, yes, perhaps infinitely, more numerous than are the varieties of atoms or the varieties of letters.

But you ask, Where does the mere abstraction come in? We answer in the assertion that all the letters, the *a*'s or the *b*'s, or all the atoms, those of oxygen, or those of hydrogen, are really alike. It is true, written words are composed of *a*, *b*, *c*, etc., but for all we know there are no two concrete letters in the world alike. True, water is composed of particles, but who knows that any two of these are absolutely alike? They are alike chemically, it is true; that is, they have certain definite properties in common. But the moment you deny any difference between one and the other, you convert them both into mere abstractions; and this is just what the atomist must do. Let us take an instance. Here is a herd of animals, and by examination we find it composed of horses. So far all well and good; but supposing you deny any difference between any two horses in the world. Then your term "horse" has come to connote only certain common properties. Therefore to any one that believes that two individual horses will always be found to differ in some respects, your word "horse" is a mere abstract term. Hence, if you dogmatically refuse to admit any other properties in the concrete entity than you admit as connoted in your abstract term, then your concrete entity is no longer such, but a mere abstraction. An atom of oxygen is a mere abstraction if the chemist means that the connotation of the term sums up all the attributes of any given concrete atom or particle.

But now for the second point. This abstraction is just what the atomist ultimately has to make. If his atoms have different characteristics, then his process of analysis is not complete; his atoms are not true atoms. If an atom of oxygen *a* and an atom of oxygen *b* differ, then we have before us a new problem of analysis. They cannot be for us any longer atoms. They themselves must be composed of more elementary atoms. Now as long as we fail to find any difference between atom *a* and atom *b*, they serve well enough as atoms. But what chemist would dare make the astounding assertion that each atom of oxygen is absolutely like every other atom of oxygen? No matter where we may stop in our analysis, no matter what the atom may be, dare we say of it, it is like every other? No, we dare not any more than we dare say of a herd of horses, each horse is absolutely or exactly like every other. But yet to regard any elementary entity, or entities, at any given stage of analysis, as atoms, means just this, that for our purpose they are all alike; they are ultimate products of analysis. Thus for science's purpose we treat them all alike, and call them atoms; we make them abstractions. When we say that nature is composed of particles called atoms, we mean we have analyzed until for our purpose analysis has gone far enough; and then we treat the resultant entities as though they were all alike. We ignore their differences and concern ourselves only with the common properties. We treat them, and may rightly treat them for science's purpose, in a way that makes them mere abstractions.[1]

The ultimate atom of physics is clearly a mere abstraction.

In fact, we have at hand verification of this conclusion. What can be ultimately an atom for physics but a moving point or an entity that physics treats as a moving point, no matter whether it be such or not? Now, that a moving point is a mere abstraction, no sane mind that understood the statement would deny. Hence, since physics must ultimately regard any entity as a moving point, or else proceed to further analysis, the only true ultimate atom for science is a moving point, and therefore a mere abstraction. Physics rightly refuses to consider the concrete entity as a concrete entity, but treats it as an atom, because there is in any given case a limit to necessary analysis. As finite beings we have to stop our analysis somewhere; and on this very account our atoms have to be mere abstractions, for these are the only sort of atoms that can serve the purpose of science.

Must we, then, conclude that the world of nature is not composed of simple entities called atoms? Once more we must warn ourselves against the ambiguity of this question.

First, nature is for science an object of an indefinite amount of analysis. To interpret it we have to treat it as composed of simpler elements, and these simpler elements are atoms. To do this, however, is an attempt to formulate the processes or activities of nature in abstract general laws. It is not an attempt to describe nature in all her completeness or with absolute concreteness. We are interested in things as class representatives. We do not concern ourselves with the individual peculiarities of every grain of sand on the seashore, but talk of the sand in general. The sand as a whole is of interest to us; but our finite mind and our finite needs are satisfied if we neglect the individual grain and deal with the sand more or less as a totality. So, as we shall see later, we always neglect the concrete thing and deal with it from the point of view of the class to which it belongs. This very law of our minds has led, as we have shown, to the atomic theory as a means of explaining things.

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[1] Cf. the doctrine of Leibniz that every monad, or atom, must be in reality different from every other.

But when we ask what is nature in the concrete, what is that reality science analyzes, dissects, or interprets in abstract terms, we are forced to say that we have no right to call it merely an aggregate of atoms. As our first discussion showed, each thing is indefinitely rich in qualities. Each stands in an indefinite number of relations to other things. Instead of each thing, or object, being as poor in characteristics as is an abstract atom, it is just the opposite. The nearer we approach the concrete, or the reality, in the sum total of its characteristics, the richer it seems.[1]

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[1] Thus we should say with Leibniz the real concrete atomic body (no matter where we stop our analysis) has an infinite number of activities or characteristics and would thus be in itself a whole world for further interpretation.

CHAPTER VII

MOTION

Motion is an abstraction, the concrete is the moving thing.

THUS far we have dealt with matter and its constitution, and so with the atomic theory. We come next to consider another element of nature, namely, motion. This topic we can treat with greater brevity, because of the discussion that has preceded.

First, by analysis, we separate in our thought the motion of a thing from the thing itself, and treat the motion as though it were a thing by itself. This abstraction, like those which have been already considered, is also wholly justified by our intellectual needs and limitations. But when we reflect about our procedure, we must see that motion, like the atom, is a mere abstraction. There is no such concrete thing as motion. There are *moving things*, but motion apart from the entity that moves, looked at in the concrete, is as absurd as the figure or shape of a thing regarded as an entity apart from the thing itself. Likewise, too, we can analyze a motion into a number of motions, as of course we do in physics. Here, again, we are abstracting. The motion of a thing is but one motion, if we keep near the concrete; and the many motions mean that we have dissected the one motion. In short, matter and its motion in the concrete reality do not exist apart, are not two entities, but are merely different aspects of one and the same thing. The reality therefore is not the matter, nor is it the motion. It is that which includes in itself both; yes, and as we have seen, includes also innumerable other characteristics.

The problem of the transference of motion from body to body.

The second and last problem that we shall consider regarding motion is: Into what chief types can it be divided? There is first motion, as possessed by any one moving body. Next there is motion as it is communicated from one body to another; and this communication, or transference, of motion is said to take place in two different ways: by pushing, or collision, and by attraction.

Let us consider first the communication of motion by attraction.

Attraction cannot be regarded as the ultimate explanation of such transference, but is itself always an unsolved problem.

In our discussion of the atomic theory we saw that the true ultimate atom is a geometrical point, and that likewise the atom in motion is a point moving along a straight line. The "atom of motion," then, is the motion of a point, and is always in a straight line. No other motions satisfy the final demands of our analysis.

What, now, is the "atom" of the communication, or transference, of motion? We answer: One point coming into collision with another, and the one point losing motion and the other gaining as much motion as the former lost. But if this be the "atom" of the transference of motion, then all so-called attraction, or action at a distance, must be ultimately reducible to it. In short, wherever science explains anything as a result of "attraction" and goes no farther, she has not yet solved the theoretical problem; she has reached a practical solution, but there remains a theoretical problem nevertheless. Science will ever feel concerning such a result the need of further analysis. For example, we find that the phenomena of gravitation are not felt by science to be explained so long as we have to speak of these phenomena in terms of attraction between two bodies. We find already an hypothesis in the field trying to formulate an explanation of these phenomena in terms of the collision of particles against the bodies in question. In short, as a mere fact in the history of physics, attraction is not a solution, but an unsolved problem; and the scientist feels that could he but analyze further than he has done, he would be able to reduce all instances of attraction to forms of collision. With this fact in the history of science we, as reflecting scientists or philosophers, are not here concerned; but we are concerned with the question whether or not any rational principle lies at the bottom of this treatment of attraction. Is the collision of moving points the truly rational "atom" of the transference of motion? Let us see.

Must collision rationally be the final form of motion-transference?

If, by hypothesis, two points *a* and *b* are moving in an absolutely empty space and do not come into collision, we naturally maintain that the moving *a* will not undergo changes in its motion because of the presence of the moving *b*. If any change occur we at once conclude, either that some other body *c* collided with *a* (which of course would be contrary to our hypothesis) or that *b* must after all have come into contact with *a*. But why should we all feel impelled to look for a collision as the true explanation?

Attraction seemingly asserts indirectly that the transference is causeless.

We should do so for the following reasons. If *a* is influenced by *b*, why should it have been influenced just at the moment *y* and not at the previous moment *x*? Namely, why should *a* now be influenced by *b* and not before this, inasmuch as *b* has been present in space all along? To this an opponent might reply, *b* does not influence *a* till it gets, say within a mile, or an inch, or some other distance. But why so? Is there any really new element in the state of affairs, because these moving points are approaching each other? By hypothesis no body exists in between them. Therefore no moving object exists between them. Hence their nearer presence appears to our intuition as in no way an effective change of conditions; as each is cut off from the other by an absolutely empty space and therefore exists in a little world by itself. Thus if *a* and *b* were to approach and then either of them change its motion we should feel that an effect had been brought about in an inexplicable way, which means without any cause. As we shall see later, in discussing the principle of causation, if the conditions remain the same, the effect must be the same. To our intuition in the case of *a* and *b* approaching in an empty space, the conditions are not changed. Hence we maintain a change in the character of their activities would be causeless; which is absurd. Therefore did *a* and *b* change their activities without coming into contact with each other, our intellect would at once set us to searching for some heretofore unknown point *c* that had been the cause.

Whereas Collision supplies us with just this cause.

Now, on the other hand, if *a* and *b* come into collision, then our intuition does find a change in the conditions, for that instant *a* and *b* would be no longer *a* and *b* but would coalesce into *ab*. They could not go through each other without occupying the same space, which to our mind seems absurd; hence if the principle of inertia is to hold, they must repel one another. A real change in the conditions, namely, a change that was not included in the original hypothesis, has entered; and we feel that there is something present to which we may ascribe the change in the motion of *a* and *b*. In short, we may sum all this up as follows: wherever a change of motion takes place, we seek, as it were, for some scapegoat on which to lay the blame. If all is as it was before, we can find no scapegoat; but if a collision, a new element, has entered, we lay the blame upon it, whether rightly or not depends on a number of conditions. In our case it would depend upon whether it be true or not that the collision was the only new element that entered into the conditions. If it were, and we could know it, we should at once without hesitation accept it as the cause of the transference of the motion. Whereas a mere change of position without collision would only set us to looking for some other change to account for the transference of motion.

Hence the rational ground for rejecting attraction, or, as it is called, *actio in distans*, as true form of motion-transference, is that such an hypothesis ultimately disregards the law of causation by not bringing in an efficient change in the conditions to account for the change in the result.[1]

The meaning of the term "transference of motion," in natural science.

To take up our second or remaining problem. How about the transference of motion itself? Can there be such a thing? This question, as an ultimate one of the interactivity between two entities, we must reserve till later.

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[1] Lotze (Metaphysics, Book II, Chapter V) proves that "*motion* can *only* be an effect of forces acting at a distance." He adds, "To speak of action when the elements are in close contact, I regard as a contradiction." As he shows, two bodies must either have space between them or in part coincide.

But true as all this argument is, it really fails to meet the essential problem. The expression "collision," or "contiguous points or planes," in geometry means that an infinitesimal distance intervenes, means, in short, that no other geometrical object intervenes. This last marks its true significance. The doctrine of collision then merely wishes to assert that the two bodies are contiguous, that no other body lies between them or can lie between them.

But, you ask, is not an infinitesimal distance still a distance, or a separation? We reply yes, if knowledge or science ever dealt with the infinitesimal; but science does not do so. It deals with the finite, and in terms of finite quantities the two bodies are in collision. If we dealt with the infinitesimal, then science must have reached the limit of its analysis, must have carried it on to infinity, in short, it would have ceased to be "relative knowledge" and would have become "absolute knowledge," a manifest absurdity.

With Lotze we too maintain that ultimately the transference of motion and the division of the world into separate things is untenable. But science is not dealing at all with this metaphysical problem. Science does divide and has to divide the world into things, and then finds their relations. So likewise science regards two objects as truly contiguous as long as it places nothing between them. The doctrine of collision, then, as such, does not claim to deal absolutely but only relatively with the problem.

A further significance of the doctrine of collision (and for us it seems the really final and alone satisfying argument) could be brought out after a discussion of the nature of probability. We shall there try to show that the true and immediate cause in nature must be contiguous to the object it acts upon; and therefore, if we regard a distant object as the one acting upon the given object, this simply leaves the problem but partially answered, in short, gives only a remote cause. Cf. appendix to Chapter XII.

It will be enough for our present purpose to show just what science must be held to mean by the expression "transference of motion."

In the case of the two moving points coming into collision science means that there are three elements, first *a* with its motion α, *b* with its motion β, next the collision, and third *a* with motion α_2 and *b* with motion β_2. In short, the term "transference of motion" means, in the final analysis, not that motion leaves *a* and goes to *b*, but that *a* and *b* after the collision have motions of a different character from those they had before. Thus the expression is the statement of a fact, and not an explanation of how the fact arises. It does not mean that *b* now has motion that can actually be identified with *a*'s previous motion; but it means that *b*'s motion has changed, and that it can be *compared* with, and perhaps in some ways can be found to be of the same kind, as *a*'s previous motion. It is not an assertion of identity or an explanation of occurrence, but a statement of resulting facts and their similarity, or likeness, to previous facts. To take the reader into our confidence, a gigantic difficulty for our reflecting reason to master is the actual occurrence of a literal transference of motion. We shall discuss it later, and reject it as an impossibility. Therefore we wish to show that it would be utterly unfair to natural science to maintain that any such doctrine is taught by it. The purposes of natural science in no way demand that we should take sides one way or the other regarding this metaphysical problem. Science's laws and results would be the same no matter how the question is answered. Therefore science can ignore the question, yes, should ignore it, and hold to the limited meaning of the expression, "transference of motion."

CHAPTER VIII

THE CONSERVATION OF MASS AND MOTION[1]

The two problems before us.

As our text-books in physics inform us, science maintains a number of truths concerning the motions of bodies. Thus we are told, in the principle of inertia, that a moving body in an empty space would move on forever in the same direction, with the same rapidity; or otherwise and technically expressed, "The linear momentum of a body will not change if there is no force acting on it." Again, if two bodies come in collision, the sum of their mass and motion is not altered. Finally, these truths lead to the general principle, the quantity of matter and motion in the universe are constant, the so-called principle of the conservation of energy, or the persistence of force. To use this principle in its broadest sense, it includes possibly three assertions: —

1. Matter may change its form, be divided, scattered, recombined, etc., but it is never annihilated. Its mass is constant.
2. Motion is never annihilated.
3. Energy, or the power of doing work, may change its form, but is never annihilated.

In our present discussion we must limit ourselves to two questions concerning this law. (1) Is it true? (2) If true, is it an ultimate presupposition or axiom of science, or is it a conclusion from experiments, namely, an inductive conclusion? Is it *a priori* or *a posteriori?*

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[1] *Parallel Reading.* The student should read in connection with this chapter, Chapters IV, V, VI, VII, and VIII of Part II in Mr. Spencer's First Principles. Further references are the following: Lotze, Metaphysics, Book II, Chapter IV; Stallo, Concepts and Theories of Modern Physics, Chapter VI; Höffding, History of Modern Philosophy, Book X, Chapter I.

I. The truth of the principle of conservation.

First, are we sure that it is true? That depends upon what we mean to assert.

The principle means relative conservation.

We here come upon one of the great truths that must busy us later on, namely, the relativity of all our knowledge. If we mean that *absolutely* considered matter and motion are never annihilated, we are saying that which we do not know. If we mean that *relatively* considered they are never annihilated, the principle of conservation does hold.[1] What do we imply by the words "absolutely" and "relatively"? An example will make this clear. You and I measure time by means of comparing an interval with what takes place in that interval. For instance, a day means the interval in which the earth makes a complete revolution. But you might ask, How do I know that the earth revolves to-day at the same rate of speed as it revolved yesterday? Might not, then, the interval called a day keep varying? I reply, The way in which I know that the earth revolves with the same speed to-day as yesterday is that I compare its revolution with other events that happen in the same interval. During that time the planets have altered their position, and the sun the altitude of its path in the heaven. Then, too, on the earth there have taken place in the twenty-four hours thousands of events that, judged from experience, agree with the statement, The earth has not taken a longer or a shorter time to revolve than heretofore. For instance, our best clocks show that noon by the sun to-day is indicated by the proper point on their dial, that is, where we should expect it if the earth had moved regularly. But suppose you are not satisfied with this answer; suppose you object, "How do I know that all these thousands of events have not changed their rate of occurrence, all of course in the same ratio? Suppose some world-demon had

Meaning of the term "relative."

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[1] Cf. James Ward, Naturalism and Agnosticism, Vol. I, p. 170 ff.

played a trick on us over night; had kept each occurrence in the same proportion or ratio of time consumed; why might he not have changed what was a day into what was a million of years?" Should we know the difference? We reply, "You are quite right, we should not." If everything happened "relatively," that is, one thing as compared with another, in the same proportions of time, the absolute time might jump back and forth from minutes to millions of years every other second indefinitely without you or me knowing the difference. Just as much work would be done in a day. You and I should change and grow old to the same extent in a day. The planets, the sun, the earth, would alter their positions in the same order as heretofore. The tides, the clocks, and all, would move in complete agreement with the old programme; but yet a million of years considered absolutely, namely, apart from any comparison with definite events, might now be but a second. In short, our measurement of time or anything else is purely relative; in fact, absolute measurement is a contradiction in terms. A thing is so long, so big, so old, all in relation to other things. It is a matter of comparison. To Rip Van Winkle his sleep, when first he awoke, had been but over night. When he walked into the village, saw the new town and the new faces, dress, customs, and so on, then, and only then, could he realize how long his sleep had been.

So, also, with the law of the conservation of energy. Matter and motion relatively, or comparatively considered, do not change their quantity, but are constant. A world-demon might annihilate some matter and motion and, by keeping everything in the same proportions, make the world seem absolutely the same. Therefore our law in no way refers to the absolute quantity (really a contradiction in terms, for quantity means the result of measurement, *i.e.* comparison), but to the relative quantity; and in this sense the law holds.

II. Is the principle an *a priori* truth?

But is the law an ultimate axiom, a self-evident or *a priori* truth, or is it known to be true only by experiment or observation of many cases? We answer, It is *a priori.*

All measurement must ultimately assume the accuracy of the means of measurement, and this means its conservation.

Let us see. The reader will surely admit that if we get a result by measurement, for that result to be worth anything the measurement must have been fairly accurate. In other words, he will surely admit that those who say it is not *a priori* and yet believe in its truth presuppose in their doctrine at least that they can measure. If they cannot, their results are worthless; and surely they never proved anything by such untrustworthy measurement. This granted, we turn about and assert that you have to assume the conservation of mass and motion before you can have any trustworthy measurement. In short, if we are right, our opponents put the cart before the horse. Their position is a great *petitio principii*, or begging the question. They prove the conservation by measurement, and then they prove the measurement by the conservation.

To turn to the proof of this statement. Let us take a concrete case. We turn to a friend and ask him what time it is. He pulls his watch from his pocket, and answers, "Twelve o'clock." We reply: "No, it is not twelve yet. Your watch is wrong." He then goes into the next room to look at a clock there, and returns, saying, "This clock says twelve." We reply that we cannot help that. It is not twelve. Our patient friend looks at other clocks with the same result. We reply, as before, "They are all wrong." Well, to satisfy our doubting spirit, he telephones to an astronomical observatory in the neighborhood and asks what their clock says. But still we maintain that he is wrong. Next he appeals directly to an astronomical observation. We reply, "Your instruments are not accurate." He shows us the care with which the instruments were made and the large number of careful observations by which his results have been verified. So the matter might go on indefinitely between us and our scientific friend. Now the question arises, Where is the point at which we go beyond all bounds of reason, and where our opposition becomes not any longer a legitimate doubt, but sheer nonsense? Let us see. He keeps appealing to better and better clocks, to better and better instruments, to better and better observers, to better and better means of measurement in general. And we all agree that he does rightly in so doing. But what constitutes a better measure, a more accurate clock, and so on? We should be told about its careful construction, and, above all, of the care with which it is kept. A clock would be kept in the same temperature. A standard yard measure would be handled with exceeding care lest friction of handling might wear it away, and so on. In making the observations all manner of care would be taken to make allowance in our results for every variation in any of the accompanying circumstances. The barometer would be consulted, the refraction of the air, as far as it might be a varying factor, would be taken into consideration. In short, anything that might in any way affect the action of our instruments and the accuracy of our observations would have to be carefully computed before we should feel assured. But right here we ask our opponents what good is all this care in measuring. The answer would no doubt be, To measure, you must have each time absolutely the same means of measurement, and you must try to get them, either directly or indirectly, through making necessary allowances in the results. But what is our opponent presupposing? Is it not this, that an instrument of measurement under absolutely the same conditions will give the same results? But right here could we not push him through the endless series of questions again till he told us how he knew that the same conditions were surrounding the instrument and governing its application; how he knew that the instrument itself had not undergone a change in the interval that

Therefore the principle is the presupposition or *a priori* premise of all measurement.

would throw out of court at once all his results? All our opponent could do would be to measure the instruments and show that they had not changed. But, again, we could call his measurement in question. Whither would he then have to retreat to escape our objections? Ultimately, to the statement that an instrument is always the same if nothing happens to it, namely, if it is kept carefully enough. But, Mr. Opponent, is that anything else than the doctrine that the mass or the motion of your instrument is forever the same under the same conditions? Then, again, if it has altered its nature or characteristics in any way, you discover this by assuming that some other instrument has not. In short, we force your measurement right down to the point where we show that you are assuming, and have to assume, the principles of the inertia of matter and of the indestructibility of matter, and that in a collision between two bodies the one loses as much motion as the other gains. If these fundamental principles be not valid, neither is your measurement trustworthy, nor can it be. But these fundamental principles are nothing else than the law of conservation. In short, to have any measurement trustworthy, it has to appeal to this law for its justification. If the law of conservation depends upon measurement for its proof, then the two proofs are mutually dependent and are together a begging of the whole question.

Therefore our final conclusion is valid; the law of conservation is an axiom.[1] It is not the conclusion of any

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[1] An objection that may be raised against the principle of the conservation of motion is the fact called potential energy. It may be said, potential energy is not motion, that is, motion can pass into a state that is not motion.

To this we may reply, as a question of physics, different forms of potential energy may sometimes be found to be merely molecular motion within the mass. The particles may be vibrating. As a matter of philosophy, the expression "potential energy" in no way describes the present fact, but the future. It does not tell us what is taking place within the mass to quantitative comparison, but the very presupposition on which the comparison logically rests.

The present meaning of the term "*a priori*:"

We have here met two very important problems. First, what do we mean by a law or proposition being self-evident or *a priori?* The full meaning of this term must be brought out gradually as we proceed. So far we mean by it, any truth that forms a fundamental presupposition. As we know from the study of logic, every conclusion is drawn from one or more premises. Should any one ask us, Are the premises true? we should be rationally obliged to make these premises, in turn, conclusions of arguments that would establish them. We should have to seek for further premises. Now this calling into question the truth of our premises would have to stop somewhere, otherwise our opponent would keep us busy proving our premises for the rest of our days. Where should we stop? Of course wherever we get premises whose truth our opponent grants. Such a premise from the point of view of this individual argument would be an *a priori* premise. But usually we do not mean by an *a priori* truth a premise of one particular argument, but of all arguments as far as this particular truth may enter them. In short, an *a priori* truth is one that can never rationally be called into question, but must be granted, and is granted, by

***A priori* means an ultimate premise, which as such must be assumed and cannot be proved.**

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which we ascribe the energy. On the contrary, it implies that we do not know. However, if we make the question a problem, we should never regard a motionless condition of the atoms composing it as a solution. We should always try to analyze further until we discover some motion of parts that would afford an explanation of the motion the given object can produce. We should always feel any other answer not a solution of the problem but a confession of its remaining unsolved, for we should feel that mechanically we had otherwise an effect without a cause.

One of the lessons to learn from just such principles, which should be more and more evident as we proceed, is the answer to the questions, What will science accept as a solution to any given problem and what will never seem a solution? Such a case was that of gravitation. The word "attraction" in physics cannot be an ultimate explanation but only a confession of ignorance.

all. It is never itself a conclusion of an argument. Thus we might define an *a priori* truth as one that always serves as a premise, never as a conclusion. In fact, we shall see that it is impossible to prove an *a priori* truth; or, to put this in another way, to prove it you would have to assume it. In short, to prove an *a priori* truth involves you in the fallacy of *petitio principii.* An *a priori* truth has to be granted us, and therefore we have to appeal to our rational opponent whether the truth is not self-evident. If it is not, if he demand a proof, we are helpless to argue with him.

Now we have just seen that the law of conservation is such a truth. To prove it we should have to measure matter and motion; but to measure matter and motion, we have to assume it as one of our premises. Hence our opponent must grant it or else give up the very possibility of measuring anything quantitatively. It is the ultimate principle, or premise, of all quantitative measurement. The reader may ask, very justly, the question, May not the very possibility of quantitative measurement be called into question? This problem should be pointed out here, but we must reserve its solution till later.

The so-called inductive proof of the principle.

The second important question is this. Our opponent may ask, If the law of conservation be known *a priori*, why has it happened that it was discovered through actual experiment? The answer is easy. An *a priori* law, namely, a presupposition, may be made by us very often without our being conscious that we are making such an assumption. Do we never meet a man or woman that has not a large number of opinions that he or she never calls into question; that he or she hardly realizes as being presupposed the whole time? Do we not all have our prejudices; are we not all in some things narrow-minded? Does not our psychology show that each one of us is an old fogy where habit and environment have bound us down to definite lines of thought? So, likewise, in science, many and many a presupposition is constantly made — made even for centuries — and never called into question by the scientific mind; never even noticed by thinkers. Some day a genius happens to notice such a presupposition, calls to it the attention of the scientific world, and, perhaps by calling it into question or proving it false and something else true, works almost a revolution in some great field of one of the special sciences.

So the fact that we are unconscious of presuppositions is no necessary proof that they are not made. What the so-called experimental proof of the law of conservation did, was to discover and bring clearly to men's minds just this law. They may have thought they proved it, but their proof really presupposed it. In short, the discovery of a law is something very different from its verification. The experiments referred to did attract the world's attention to the law. But though to the experimenter they seemed also to prove the law, they really presupposed it. That the experiments proved nothing at all, of course we do not assert. What they proved is for the physicist, not for us, to determine. One thing, however, we logicians know that they did not prove: they did not prove truths they presupposed.

CHAPTER IX

THE MECHANICAL THEORY[1]

The Atomic Mechanical and the Dynamical Theories of Nature.

THERE have been thus far two standpoints coming to the surface in our discussion. There has been, first, that standpoint from which the world of nature appears to be a world made up of atoms. All the processes of nature, from the origin of the solar system, from the geological and meteorological transformations in nature, all the way up to the formation of living organisms, their evolution, their highest forms in man and his nervous system, yes, on up to all the material phenomena of society and human achievement, all these processes are to be explained as the action and interaction of an indefinite number of atomic bodies. All these things can be analyzed into these atoms and their changes or processes; their formation and transformations are but the motions and transferred motions of particles obeying ever the Newtonian principles of motion. Could we but know each atom, its mass, its motion, the direction of that motion, and its position in space, then the remainder of a complete explanation and complete prediction of all nature's phenomena would be but a mathematical problem; of course a problem of indefinite complexity and one beyond our means of calculation, but still only a problem of mathematics. A world-demon with this information and with the adequate mathematical ability could predict to the second all the phenomena of life and society, the events of history, the rising and falling of empires and civilizations, the composition of books, the lives and fates of men, the evolution and dissolution of our race, our earth, our solar and sidereal systems. From beginning to end all would be but atoms bounding and rebounding according to mechanical laws.

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[1] *Historical Note.*

The Mechanical Theory dates from the days of Democritus (about 460–360 B.C.). The chief names associated with it in the Græco-Roman world are Leucippus and Democritus, Epicurus (341–270 B.C.), and Lucretius (98–54 B.C.). Among the later schools both the Epicurean and Stoic held to a mechanical natural philosophy.

Concerning this theory in antiquity read Weber, History of Philosophy, pp. 55–58, and Windelband, History of Philosophy, Section 10, "The System of Materialism."

To turn to the modern world. We must look chiefly to Galileo (1564–1642) for the birth of modern mechanics and with it of the modern mechanical theory with its application of mathematics to the solution of natural problems. In the seventeenth and eighteenth centuries the mechanical theory as a general interpretation of the world reaches the height of its supremacy in the thought of Europe. To it belong the names of Des Cartes (1596–1650), the Cartesians, Spinoza (1632–1677), Isaac Newton (1642–1727). (Read Sections 30 and 31 in Windelband's History of Philosophy.)

In the eighteenth century, there was, especially in France, a strong materialistic mechanical movement. (Cf. Section 60 in Weber's History of Philosophy and pp. 479–481 in Windelband's.)

Opposed to the mechanical theory and offering in its place a dynamical one stands the philosophy of Leibniz (1646–1716). (Cf. Windelband, p. 420 ff.)

The name representing the final standpoints of the mechanical theory of the eighteenth century is that of Laplace.

Then again, we have held to a second standpoint. We have frankly admitted the validity of this atomic and mechanical analysis and explanation of nature; but we have maintained that it is only an abstraction, and as such not a

On the general history of the Mechanical Theory the student is referred to the great work of Lange, History of Materialism, to which we shall refer also in the chapter on Materialism. Another important work to which reference should be made is that of Kurd Lasswitz, Geschichte der Atomistik vom Mittelalter bis Newton. 2 vols. Hamburg and Leipzig, 1890.

The nineteenth century added little to the philosophy of the Mechanical Theory.

complete picture of the real nature. We admit all that is said from the first standpoint about the ability of a world-demon to analyze and to predict. Such intellectual achievements in miniature and fragments we see accomplished every day of our lives. Yet, on the other hand, the world of nature is, as we have learned, something more than mere atoms. To say that it is only atoms would be as absurd as it would be, did a geometrician say nature is composed only of points or triangles. Points and triangles are mere abstractions; but so also are atoms. We have found that the real world is one infinitely rich in elements, in qualities, in characteristics. The real world, the concrete world, contains infinitely more than any of our sciences with their abstractions tell us.

The conflict between the two views.

Here we come upon a point where men differ and enter into dispute. Some men, led astray by the truths of the atomic theory, have actually gone so far as to say the world of nature is, after all, only atoms and their bounding and rebounding. There is nothing else. They have looked upon the complete story of the atoms as a complete story of nature. They have said: When natural science is fully worked out, she will have given us all there is to know; we shall know the world as it is. This doctrine is a mechanical materialism. The trouble with this doctrine is, as we have seen, that a truth has been misunderstood and its meaning and significance grossly exaggerated. The atomic theory holds of the world, but it is not a complete description of the world. Materialism has often blindly identified the two.

But right here its opponents tend to go to the other extreme. They have seen how the atomic theory fails to explain or to account for all reality; and therefore they have maintained against the atomic mechanical theory that it does not hold at all, or not universally, that nature cannot be accounted for as a world of atoms bounding and rebounding; and so they give us another theory, that we shall call the dynamical theory. Here, again, a truth has been misunderstood and its meaning grossly exaggerated. The atomic theory does hold universally in nature. All nature's events can be analyzed into atoms and their motions, as science is attempting to do. This does not mean, however, that such an analysis accounts for all the elements that make up nature; no, indeed. This we have already shown. But this truth militates in no way against the atomic theory rightly understood. It militates against materialism, it is true, but no more. In short, an atomic explanation of nature is a valid interpretation, but it is not a complete one. There is then for us a middle position between materialism, with its mechanical explanation of nature in its totality, and the opposing dynamical theory that nature is not the product of atoms and their motion, that the mechanical theory does not hold.

Our position we may put then as follows: —

The reconciliation of the two theories. Mechanical laws hold of all nature, but do not exhaustively describe it.

If we seek for a complete, all-including picture of nature, it must be found along the lines of the dynamical theory. When we separate motion from the moving body, our act is one of abstracting two elements that do not, and cannot, exist apart. The true reality is one undergoing changes and possessed of all its secondary qualities. The dynamical theory, *in so far as it refuses to separate the motion, or activity, of the mass from the mass, that sees in the atom or mass a self-acting entity*, is nearer this complete description. Yet, as we have said, we must give its due to the mechanical hypothesis. The mechanical theory is the logical outcome of the analysis of the objects and activities of nature that must precede their interpretation. But, on the other hand, the dynamical theory is right in maintaining that the complete story of nature cannot be told in mechanical terms. In short, we deny that the two theories are contradictory. Both stand for complementary truths. Nature is mechanical; it obeys mechanical laws. But nature is more, too. Nature, from another point of view, is dynamical. This other point of view, however, carries us beyond the present problem, as we have limited it.

Thus science rightly feels that all forms of nature's activities are in accord with mechanical laws, and that on this account she should carry her analysis into every field, and there attempt to reduce all the phenomena to a mechanical system. The history of civilization is theoretically as mechanical a process as is the flow of a river from an inland lake to the sea. The mechanics of the one series of events may be complicated to such an extent that we know, in comparison to the other series, little about it; but none the less science sets herself the same ultimate ideal in each case, atoms and their motions.

But remember, there is all the difference in the world between the statement, "A series of events obeys mechanical laws," and the statement, "A series of events is exhaustively described in an account of the mechanical laws that it obeys." The river would be far more, yes, almost infinitely more, adequately described in an account of its mechanics than would be the history of civilization. The one, to our minds, seems infinitely richer in variety and complexity of content than does the other. For this reason we should go away far more easily satisfied with the mechanical explanation in the one case than in the other. We have accepted the mechanical theory as an ideal of natural science in its interpretation of nature's doings. We have not (as we shall see later) accepted it as the last word metaphysics has to say about nature.

CHAPTER X

SPACE AND TIME[1]

IN our reflective study of nature we are next to discuss two of its chief characteristics. Nature is a spatial and a temporal world. As we have already said, we believe our universe extends on indefinitely in space, to which we can think no bounds. Then, again, we look upon the present

Nature exists in time and space.

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[1] This chapter leaves out of consideration many of the most important problems that have been raised concerning space and time. The reason for so doing is this: these problems do not belong to that of space and time as such. They belong to larger questions.

1. *There is the problem of the phenomenality of space and time.* Kant and others deny their *absolute reality,* regarding them as only *empirically real.* They are the *forms of our intuition,* and as such are the products of the mind. This whole question must be brought under the larger question of Idealism *versus* Realism. If we refuse to distinguish between absolute reality and empirical reality, if the real world is the empirical world and it alone, then it is absurd to talk of space being phenomenal. Space must then be as truly a part or element of the real world as is any other element.

For the Kantian doctrine read Windelband, pp. 537–541; Weber, pp. 437–444; and in Watson's Selections from Kant, "The Transcendental Æsthetic."

2. *The Problem of Conceptual Space as opposed to Perceptual Space.* By conceptual space is meant not the space that we perceive, but that we construct mentally by abstraction, the space we study in geometry and mechanics; whereas perceptual space is the space our eyes and hands actually reveal to us. Is there anything on earth in connection with which we do not have this same problem? Who ever perceived all the rooms in a palace at once? Who ever saw all the parts of his body? Is there then a conceptual palace and a perceptual palace; my conceptual body and my perceptual body? All objects as dealt with by knowledge are conceptual. Are all objects, therefore, unreal? As we shall see later the word "real" has two meanings, and thus we can quibble. Real as applied to the perceptual has a different meaning from real as applied to

order of things in our world as the child of the past; but the past, in turn, was the child of a yet remoter past, and so on indefinitely. Similarly, the future will be the child of the present and, in turn, the parent of a remoter future. In this way we speak of our world as extending indefinitely in time. We can think of changes taking place, and therefore having a beginning and an ending; but a beginning or an ending for nature as a whole we cannot conceive. As a consequence we look upon its existence in time as limitless.

To join our two statements together, the world of nature exists indefinitely in space and time. But when we make this statement, does it occur to us to ask what are these things, space and time, in which nature exists?

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the conceptual. But if you will only use the word *true* for the conceptual and *real* for the perceptual, the difficulty should disappear. Then it is absurd to ask whether our conceptual knowledge is real! Our conceptual knowledge is true; that is, its assertions hold of reality. It is absurd then to ask whether any object as we *conceive* it is real, but we should ask, Does our conception hold true?

The whole problem then is, Do the space and time of geometry and mechanics hold true of the real world, do mathematics and mechanics hold true of reality? This and this alone is the problem of the "Reality of Space and Time." All conceptions are ideal, but then the opposite, "real," has a very different meaning from "reality" as applied to space. In this last sense, *i.e.* as opposed to ideality, reality cannot be affirmed of any object of knowledge, as we shall see later.

3. There is the question raised and argued so ably by Kant, *Whether space and time are conceptions at all.* For him they were perceptions, or intuitions. True, "space" and "time" are not general terms like "horse," "cat," "dog," etc., *i.e.* terms applicable to many different objects. But space and time are conceptions in that broader sense in which any synthesis of thought is conceptual. We cannot perceive space as a whole, as Kant himself later admits. But on this whole question the reader is referred to the admirable chapter of Edward Caird, in the Critical Philosophy of Kant, Vol. I, Book I, Chapter II, "The Æsthetic," especially pages 289-295.

Cf. also The Grammar of Science by Karl Pearson, 2d ed., Chapter V, "Space and Time," especially as a reference under the second problem, "the reality of conceptual space."

4. *The Problem of the Genesis of our Space-perceptions.* This problem belongs to pyschology, not to philosophy.

In our study of geometry and mechanics we talked about geometrical figures and their location in space, and of points, or bodies, moving about in an empty space. But what is space? Did we ever see it? Yes and no. We have never seen an absolutely empty space, that is, a space with no colored background. Surely looking at an absolutely empty space our eyes would receive no stimulus from it, and we should not see any space unless by way of illusion or hallucination. But what would an absolutely empty space seem like? It would have no color, no temperature; it would contain no material entity and no moving entity. It would have none of these characteristics. But let us not say what it would not have. What characteristics would it have? Mere extension and the capacity to contain. But is there really such a thing as an entity with this poverty of characteristics? Have we not here, again, something like the geometrician's plane, an abstraction, not a concrete reality? One statement is surely true, we never saw or perceived any such entity if this is what space is. We never saw space all by itself. But perhaps a reader will reply, "True, we never saw empty space, namely, mere space, but this is no proof that space is not an entity, and could not exist as such irrespective of the existence of other entities." To such a critic might we not reply that his statement would hold just as well of any abstraction admittedly such? You and I never saw a house in the abstract. Every house we ever saw was some particular concrete house; but that is no proof that somewhere, somehow, there is a house that is not any particular house, but is the abstract house. Surely our opponent will admit that such experiences of house in the abstract and space as such, or empty space, are on the same plane, namely, are impossible experiences. A colorless extension were to our seeing mind no vision whatever; an empty space were to our touch no sensation of touch; to our sense of motion (of course apart from our

What are Time and Space?

Mere empty space an impossible experience.

own motions) no sensation whatever. In short, our opponent claims that there may exist something that our minds, from the very nature of the case, cannot experience.[1] All well and good; we accept the problem as a problem and shall try to answer it later on in another chapter. But surely, so far our opponent will agree with us, that what he and we call space is not something belonging to a world we have never experienced, but something that belongs to the real world, — to which we all belong and with which we are all familiar through every day's experience. As a consequence, anything like empty space, as asserted of that world, is not some entity that we see or perceive, but is evidently a mere abstraction. Nature is a spatial world; but to take away space from it, or it from space, leaves, not something as a remainder, but nothing whatever. It is like the story of the man that sold his shadow. The shadow was rolled up, put into a bag; off ran the purchaser with his new possession, leaving the seller without a shadow. The question is, How did it all happen? The answer is easy, It did not happen. The man without the shadow was a nonentity. His shadow in the bag was likewise a nonentity. Space apart from nature, nature apart from space, are both of the same class — nonentities.

Therefore empty space or mere space as such cannot be part of the spatial world we do experience.

We have here, again, the old story, an abstract name turned into a concrete entity. As the result of an abstraction, "space" has meaning. As a concrete thing, space by itself is like a triangle by itself — a creature of the mind having no objective existence. Just as there are things triangular, things to which we can apply the laws and properties of triangles, so there are things spatial to which we can apply the laws and properties of space. To study space we deal with it abstracted from all else; our mind deals, and must deal, with abstractions, because it must dissect one problem away from all others in order to concentrate attention upon it. But this dissec-

Empty space is then not an entity but a mere mental abstraction.

tion by the mind is a method of investigation, not any world-creative power. Fairy tales may talk of shadows rolled up in bags, but fairy tales cannot create any such realities. Neither can science. Space is an abstraction of utmost importance to science. So similarly is time. But, as realities, they are not something apart from the world that exists "in them."

Space and Time are real elements of the world but not entities.

The real world of nature is, then, a spatial and a temporal world; and we mean by space and time certain characteristics of that world abstracted by our intellect for study by themselves. *They are not entities or things; they are abstractions.*

Still empty space has an office as a concept in science.

However, this does not mean that science should not continue to use empty space as a concept and conceive all manner of constructions in it. Even the expression "absolute motion" may be serviceable and have its consistent meaning.[1]

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[1] Cf. Lotze, Metaphysics, Book II, Chapter IV, Section 164.

CHAPTER XI

THE WORLD'S INFINITY[1]

Our inability to discover limits to the world suggests negatively that there are none.

THE world, as seen by modern eyes, is one that extends throughout a limitless space. Though the worlds and systems of worlds revealed to us by the telescope, numerous as they are, and stupendous as are their magnitudes and distances, are but finite; and though they give no positive evidence of a boundless universe: still, negatively, they warn us not to limit the universe to them. The absence of any mark of limitation to the sidereal systems leads our thoughts on to worlds beyond, worlds waiting only for better means of vision to be discovered and added to the known. Likewise in time our world has no beginning or ending. We may trace roughly the origin of a solar system out of cosmic dust and its return again to cosmic dust; yet nowhere do we have evidence of a state that reveals itself as a true beginning. Each state, as such, points to a possible unknown state before it, or one after it. So negatively the evidence is at hand that leads on from period to period in world up-building and world dissolution. There is nowhere evidence of a beginning or ending. Likewise the microscope reveals a world of marvellous complexity too small for the naked eye to see. Negatively it hints that more powerful lenses[1] would reveal greater and greater complexity of parts. Chemistry and physics deal with even vastly finer parts, but in their turn give us no evidence of a limit. Thus the infinitely small, as well as the infinitely great, stands all about us; and thus we are led to view our world as infinite in every element of magnitude, extent, and duration.

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[1] There are two meanings to the term "infinite" and two philosophical problems connected with it. The second will be discussed in Chapter XLVII.

The infinite means first the boundless, the unlimited. It is this meaning we discuss in the present chapter, or in other words, our problem is, What do we mean by nature's infinity?

The second meaning of the infinite is the world as a totality, or the world as a whole treated as an object of our thought.

From this chapter it will be evident that the world is never perceived or known by us in its infinity. We deal always with some part of it, never with the boundless world. But if we can perceive or know only the finite, how dare we assert that the world is infinite? As we shall see, it all depends upon what we mean by our term.

The problems of the infinite have given philosophers much trouble. One of the most famous presentations of the ultimate difficulties and seeming contradictions involved in regarding the world as finite or as infinite is to be found in Kant's Critique of Pure Reason: The Antinomies.

Cf. Caird's Critical Philosophy of Kant, Vol. II, Book I, Chapter XII.

But further, a world-limit involves in it as a concept a contradiction.

But critical thought bids us take care lest we overstep our information. What do we mean by infinity, and what evidence have we of its existence?

To begin with the latter, our evidence of the infinitude of the world is, as we have seen, negative. Our experience never gives us limits, and never can give us limits. To recognize anything as a limit presupposes that we can see beyond, and behold that the given thing is not there. The cover of a box is its limit, because we see that in the space above there is no more box. But clearly if to know the limits of the box means that we must know that which is beyond sufficiently well to be sure that the box does not extend farther; then, surely, to recognize a limit as a limit is but to bring up some new thing beyond the thing whose limit we recognize. How then could we ever discover limits to our world? To find them we should have to know what is beyond, and that which is beyond must either belong to the world or be outside of it; but if we mean by the world the universe or the totality of existence, the latter would be absurd. It would mean knowing a beyond which itself was part of the world. To be sure, this does not give us any positive evidence of the world's existence beyond the known. It merely tells us, that if we should come to know of such existence, our problem would simply arise anew, for we should have to ask ourselves, What is beyond this part now just discovered?

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[1] Of course there is a limit to *optical* magnifying, for we should in time come to objects too small to reflect light. Still, we can imagine the process being carried on indefinitely.

Still, the infinitude of the world is not a mere negation. It is an actual element in our experience, and so has a positive meaning.

What, then, do we know positively about the world? Until we answer this we dare not define infinity; for if the infinity of the world means anything, it must mean something that we can justly assert. Why, what we know positively about the world is just this negative characteristic. We cannot know its limits. It can never be revealed to us as a limited world. To know its limits means always to know a beyond; to know a beyond means to have our problem of determining limits start all over again. And this is just what we mean by infinity. It denotes the inability of our minds to set or know a limit. In so far it is a truly positive characteristic of the world, — one actually experienced by our minds in interpreting the world. It is an actual, positive piece of experience telling us that we cannot treat the world as a whole in the same way in which we treat boxes, stones, men, houses, countries, and planets as wholes. They have their limits just because they are parts of a greater whole; but of necessity the whole, as such, would be at once turned into a part did we in any way treat it as limited. But we dare not treat it as limited without running into a contradiction in terms. Thus, whenever we interpret any object or system or group of objects, there are always surrounding objects; and this is true no matter how large our object may be. Such is the positive element we may call the world's infinity.

CHAPTER XII

MATHEMATICS AND ABSTRACT MECHANICS AS *A PRIORI* SCIENCES[1]

Sciences differ in generality, and so in the degree in which they give an exhaustive interpretation of their object.

DID we now turn our thoughts to the classification of the different natural sciences that have as their field the different elements, or parts, of nature, we should find that one chief basis for dividing them would be the generality of their fields. That is, one science deals with a smaller field than does another; and just because it does so, it is far more concrete, or interprets the object more exhaustively. A science dealing with a very extensive field of necessity neglects all but the most general characteristics of the things it interprets. Thus, did we start with anthropology devoted to the study of man's bodily nature and origin, we should find in it a far more detailed or exhaustive account of each actual object, this man or that man, than in biology. True, even a treatise on anthropology would not describe any one individual man, but rather types of men. Still, an account of these types would include far more about each individual man than would a book on biology. If from anthropology we turned to zoölogy, we should find a much larger field included in our science; and, as a consequence, this or that individual animal would be far less exhaustively described than in any science devoted to an account of that particular kind of animal.

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[1] Whether mathematics is an *a priori* science or not, has been a matter of much controversy in recent philosophy, especially since Kant.

Kant adopts a peculiar doctrine of space and time to show how mathematics may make valid judgments *a priori*. Cf. on the Kantian doctrine:

Watson's Selections; "The Transcendental Aesthetic."

Caird's Critical Philosophy of Kant, Vol. I, Book I, Chapter II, especially pp. 295–298.

Opposed to mathematics being a science *a priori* is John Stuart Mill. Cf. Watson, Outlines of Philosophy, Chapter I.

Parallel Reading.

Watson, Outlines of Philosophy, Chapters I, III, and IV.

If, next, we pass from zoölogy to chemistry, we shall find a yet larger field included. With this enlarged field fewer characteristics of the individual object are taken into account, and the truths we now learn fit a wider number of objects. There is an anthropology of man alone, a zoölogy of animals alone, a biology of living creatures alone; but there is a chemistry of all but the imponderable bodies.

Yet even in chemistry we deal with characteristics of limited universality. We can go farther, to physics, and from physics to mathematics. In so doing we pass to the study of such universal characteristics that no object in all nature fails to come within our field. But such universal characteristics, as we have seen, must bring us farther and farther from the individual. All that we say now describes or holds true of, not only one individual or type of individuals, but an indefinite number, yes, in its chief principles, all natural objects. We have deliberately cast aside the thousands and thousands of characteristics of the individual things, and have concerned ourselves only with the few, the very few, that remain. The consequence is, we are dealing with very high generalities. We are studying the mere skeleton of nature; no, even that figure implies far too much of the individual. We are studying rather the faint beginnings of an outline as the individual object approaches us out of the thick mist where all was hidden from our eyes.

Abstract mechanics teaches us concerning the most general laws of the motion of bodies and its measurement. These laws hold of all bodies in motion. Mathematics deals with objects as occupying space and as numerical units. Geometry tells us what must be true of any object just because it is an object in space. It tells us the properties of length, breadth, and thickness. Another branch of mathematics, arithmetic, tells us the numerical relations of objects. Any object whatever may be regarded as having numerical relations. Any natural object may be studied merely as something that occupies space. Any such object may be studied as subject to motion. Thus in mathematics and mechanics we set aside all the other properties and relations and confine our attention to these.

The most general are Mathematics and Mechanics.

What is the consequence? We have two sciences that differ in a most marked respect from all other natural sciences. All other natural sciences, that is, all other sciences that take into consideration a greater complexity of qualities and relations in the objects of nature, are obliged to gain the information they give us from studying the actual objects themselves and their changes. Only in this way can they gain the truths they teach.

Their generality makes their character fundamentally different.

But in abstract mechanics and mathematics we can gain our information in a very different way. *We gain it simply by reflection. We imagine our problem and reason out what its answer must be. We do not have to experiment with individual cases, or make observations of such cases and then draw by induction an hypothesis holding of all similar cases.* Thus, to learn the anatomy of animals, we have to study the individuals. We could not sit down and from the beginning reason out all the organs, muscles, and bones of the various types of animal, nor similarly the parts of plants. Nor could we sit down and merely by reflection work out the history of the nations or the biography of an individual man. All such information we have to win by observing the facts or studying the records of those before us who have observed the facts. Or, to use a technical term, all such information has to be obtained *a posteriori*.

Other sciences *a posteriori*.

But in our two sciences we do not have to proceed thus.

These two are *a priori.*

Here our study is *a priori.*[1] We can picture to ourselves all the possible cases and tell what must hold true of them. We do not have to hunt the world over for cases or specimens. Our imagination furnishes all we need. We do not have to put our conclusions to a test among the objects themselves. Our imagination alone furnishes us with all the proof that is needed. Out of his own inner consciousness man is able to weave truths that hold throughout the whole length and breadth of reality. The properties of the plane triangles, as proved in Euclid, hold of every plane-triangular object the world over. The laws of abstract mechanics hold of all moving bodies that exist or ever will exist.

The opposition to this view. Mathematics does not essentially differ from the other sciences, its results only high probabilities.

This feat of man's intellect seems not only gigantic, but absurdly so. In fact, to many it seems impossible; and therefore they try to show that man really gains his mathematical and mechanical knowledge in a very different way. They try to show that his conclusions are not certainties, but that they are mere probabilities, just as are all other forms of scientific knowledge. The truths biology and chemistry teach, they rightly tell us, are at the best only high probabilities. No one knows what moment some chemist or biologist may surprise the world by overthrowing some long-accepted opinion and replace it with another. We are never sure when some new "Origin of Species" or work of similar importance will appear. Even when the astronomer calculates, with wonderful accuracy, the next eclipse of the sun and the path of its totality on the earth, room for doubt of its actual occurrence is conceivable up to the time it occurs. Some gigantic catastrophe might occur in the meantime to do away with the sun or earth, or at least modify seriously the time of the eclipse. Thus at the best the astronomer gives us only a probability bordering on certainty, not an absolute certainty. In the same way, those who deny to mathematics its *a priori* nature, claim for its conclusions only a similar probability bordering on certainty, not absolute certainty. They claim that at best our convictions concerning the truths of mathematics are so fixed in our minds through habit that we have no doubt about their truth, even though there is still room for doubt.[1]

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[1] *The terms, a priori and a posteriori.*

For their history consult Baldwin's Dictionary of Philosophy and Psychology.

One meaning of the terms we have already discussed. *A priori* is a term applied to an ultimate premise, to a premise that is not the conclusion of some possible previous argument, to an ultimate presupposition. The term *a posteriori*, on the contrary, is applied to a truth depending upon other truths for its proof.

A second meaning of the terms (and this is the meaning implied in the present chapter) is the following. In a problem that can be solved *a priori*, we have all the data upon which the solution depends furnished by the reflecting mind itself. Whereas in a problem that must be solved *a posteriori* we have to search outside of the reflective imagination, we have to search in the world about for our facts, or data.

In reply to all this what shall be said? Are these two sciences, sciences *a priori;* and does there belong to them the certainty we generally claim for them, or only a probability bordering on certainty? And, again, are these two questions one and the same, or are they distinct? That is, can a science be *a priori* and yet permit of error?

Reply: I (*a*) a science *a priori* may contain error,

Let us answer the last question first. Most assuredly our knowledge may be gained only by reflection and yet be wrong. That is, it may be true that the only way we can know some truths is through picturing to ourselves the situation and inferring them from the nature of the picture. Now mathematics and abstract mechanics are perhaps such sciences. They are *a priori;* but that does not mean that this man's or that man's geometry is infallible. No end of error may enter into any one's demonstration of such propositions; and many a supposedly true proposition may be proved false.

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[1] Cf. Watson, Outline. Such a view is held by the extreme Empiricists, especially John Stuart Mill. Herbert Spencer quite mistakes the philosophical problem by explaining the *a priori* character as the result of racial inheritance.

(*b*) yet in another sense we do maintain that an *a priori* science must give certainties.

But in another sense we do claim that an *a priori* science must give not probable results, but absolute certainties. Why? Because an *a priori* science requires on our part only good thinking in order to get certainties. Good thinking, or rather perfect thinking, may not be possessed by any child of man; but that has nothing to do with the case. An *a priori* science gives certainties because reflection alone is needed to arrive at them. If, then, in any given case we do not get them, the fault lies solely with our reflection. In short, the certainty of these sciences is identical with their *a priori* character. Nothing human is certain; but these sciences are called certainties because the only possible room for error is limited to our thinking, or rather reflection.

(*c*) There is this essential difference between the two groups of sciences. In *a priori* sciences we have all our data. In the others we never have but a part.

In the other sciences the case is altogether different. In them we have to hunt for our facts, and we never know when we have searched far enough. We have no means other than actual hunting the world over to get our data; and we never can hunt the world over because the past and future are never at hand, and because even in the world of the present the search is always partial. We study man; but who has seen or can see every man now existing, every man that has existed, or ever will exist? Clearly all our conclusions about *man* have to be built up out of quite meagre data, as compared with conclusions reached say by some great world-demon that could observe *all men*. But in mathematics (and what is true of mathematics is also true of mechanics) we are not bound down to any such limitations. Now just because all cases we ever deal with are given us by our imagination, namely, granting that mathematics is *a priori*, because all possible cases are supplied to our observation by the mind itself; you and I have right in the mind that draws the inference, the source of all the data. It is true we have to hunt;

but the world within which, by hypothesis, we do hunt, is our reflective imagination. Our hunt may be partial, and therefore our results may be wrong. We are not all born mathematicians. But there is still a very great difference between hunting the world over, the infinite world, and hunting our minds over. The one world is infinitely smaller than the other. We grant that the smaller world is big enough, big enough for error. We grant that any book on mathematics may be false from cover to cover. But still in mathematics the *a priori* character (we now assume for sake of argument) throws out one great source of error found in all the natural sciences.

II. Mathematics and Mechanics are *a priori*. It is a fact of daily experience.

But are mathematics and abstract mechanics a priori *sciences, and how are they possible?*

That they are *a priori* sciences is a fact directly furnished us by our daily experience. We do not study either of them by hunting data in the wide world. We study both by reflection, and only by reflection. The only way to disprove this would be to show the impossibility of such a feat. We shall try to answer such an argument by showing the possibility.

An *a priori* science is possible because of the high generalities with which it deals.

The main premises of our proof the reader already has. The more abstract the science, the farther we are removed from the actual concrete world of individual things. The more abstract the science, the fewer the characteristics we have to deal with. Finally, if we make our science abstract enough the conditions, in other words the data, are very few. But what is this more than to say: If we make our science abstract enough, the field or the possibilities remaining are so few that our minds can grasp the whole world-situation. There must be a point, some place, where the mind has so limited a field before it that it can of its own self study this field merely by reflection.[1]

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[1] The "newer principles of mathematics" are even a step farther in this work of abstraction than those of the traditional mathematics. Cf. the article by B. Russell, Recent Work on the Principles of Mathematics, in the International Monthly, Vol. IV.

The mind claims it exhausts the data, and it must be accepted as the final witness.

Now this is exactly what we find in mathematics and abstract mechanics. For instance, the world of geometry is so limited in the elements it contains, that the mind is in a position to picture to itself exhaustively the whole geometrical world, as far as it is involved in any given problem. We have simply carried our abstraction so far that the remaining world is small enough for our minds to master completely. We have simply passed over the boundary where the imagination becomes sufficient unto itself. But you ask, How do we know that we have so done? Ultimately the only answer to your question is this. Our minds say we have, and we have to trust our minds. The proof of this statement, that ultimately the mind has to be trusted, we do not give here, but we hope to give it later when we discuss the Theory of Knowledge. We must assume this here and limit our discussion to the other question, whether or not the mind does claim to exhaust the possibilities.

An example.

Take the case of proving that through any three points in space, not on the same straight line, one and only one plane may be passed. What does the mind do to satisfy itself? It imagines a straight line passing through two of these points. Through this line it pictures a plane passing, and then revolving about the line as an axis. The mind sees at once that as the plane revolves it sweeps through every imaginable point of space, be that point where it may. Hence the third point must be included in it some time during the revolution. But can no other plane pass through these same points? No, says our mind. If the plane containing the third point revolve any farther in either direction, in short, become a different plane, it will no longer contain the third point. Now we can reproduce this same situation, taking a line through any other two points of the three as the axis. When we do this, we see that the three conceivable planes which alone pass through all these points are identical with one another; and thus our mind is satisfied that it has exhausted the whole universe of possibilities involved in the proposition.

Conclusion.

Thus we may conclude our discussion as follows. *An* a priori *science is one where the mind finds within its own reflective imagination the source of all possible data.* Ultimately we have to trust this warrant of the mind, and in so doing we remove from such an *a priori* science that great source of error every *a posteriori* science must contain; namely, the complete inability of the mind to hunt through all time and all space for its data. Thus a higher type of certainty is possessed by all *a priori* sciences than is possessed by any *a posteriori* science. This higher type of certainty is not merely one of degree, but one of kind; for the one group of sciences has in the mind alone all the data needed, whereas the other has not.

But though an *a priori* science is thus a certain science, this does not mean that the mind is always to be trusted in its reflective imagination. In actual cases no end of errors may arise through careless work or thinking. A child is just as liable perhaps to make errors in geometry as in chemistry. *But to correct these errors means solely to set the mind to work again hunting for the needed further information right in its own self.* And yet in spite of the truth that we can make errors in an *a priori* science, still there is the mind's conviction of the exhaustive character of its work, a conviction never so easy when its data have to be sought without the mind. From all this it should be evident that the difference between an *a priori* science and an *a posteriori* one is solely in the completeness of data for study possessed by the one as against the other. The process of reasoning is the same. Mathematics and abstract mechanics, of all the natural sciences, alone claim to be *a priori.* Of course a complete discussion would require the actual study of the details of both sciences to make sure that all the truths they teach are *a priori.*

APPENDIX TO CHAPTER XII

NOTE ON THE NATURE OF PROBABILITY[1]

The certainty of our knowledge is due to the complete exhaustion of the possibilities of any given case.

We have seen that the element of certainty in mathematical judgments is due to the mind's ability to exhaust the possibilities or to determine what alone is possible. This question of exhausting the possibilities leads us on to a closely related problem, What is the nature of probability? What constitutes the probability of any result of science, and what makes it possible for us to determine probabilities?

The probable presupposes a partial exhaustion, with more than half the possibilities in our favor.

By probable we mean that the chances are in favor of a given outcome; and this, in turn, means that of a given number of chances, or possibilities, a majority is on the side in question. To put it still otherwise, that an outcome is probable may be expressed by a fraction in which the denominator stands for the number of equal possibilities and the numerator for the number in favor, and whose value equals more than a half. For example, let us refer to the familiar instance of dice. If we take a perfect die, each of its sides is an equally possible throw; that is, the chance of any number, say ace, is just one-sixth. In the case of two dice being thrown the chance of one ace is two-sixths, and the chances of double aces one-thirty-sixth. Again, in the case of one die there are four chances out of six that a number greater than two will be thrown, and in the case of two dice there are thirty-five chances out of thirty-six that a number greater than two will be cast. We may then say that in these cases it is probable that a greater number than two will be thrown.

But right here we must note a most important truth. As we saw, for a thing to be probable our fraction must equal more than a half. If this be so, we must have a finite number for our denominator; for were infinity the denominator, we could not have a fraction of sufficient value. Now notice the significance of this truth for science, and also for philosophy. *In all scientific research, before we can reach a probable result, we must be intellectually satisfied how many possibilities we have to deal with, or at least that they are finite in number.* Otherwise, if the possibilities are infinite, to determine the probability is out of the question. Now natural science tries to learn the laws of nature, or the causal relations between material objects; and we speak of its results, and accept them, as probable, or reasonably possible.

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[1] The question of probability is one of the most important problems in Epistemology, but it seemed wise not to include in that part a chapter on this topic, but to add here this short appendix because of its bearing on the question of the chapter and on the validity of the mechanical theory.

Now such a fraction presupposes a finite number of possibilities.

But if we are to know them as such we must be sure that in any given case which science investigates, the number of possible candidates for the office of cause is really finite. Still, how can we know this? Here is an event *a*; what is its cause? We know some event must be; but which one? for there are taking place in the whole realm of infinite nature an infinite number of events. At once it is evident that if we have not some further information, some clew that will reduce the number to a finite number, the search would be hopeless from the very beginning.

But to have a finite number of possibilities in an infinite world presupposes some principle of exclusion.

But what is this information, and where can it be gotten? There seems to be but one answer, and that is the following. *In nature the cause of any given event is itself contiguous to its effect.* If this be so, we may search in the neighborhood of the effect for its cause; and there dealing with ordinary objects, we surely are dealing with a finite number.

This principle is, that the cause is spatially contiguous to its effect.

Thus if some event take place in our room, why may not some event on the farthest fixed star be a possible cause just as truly as some event in the room? Clearly if this were so, if we had to search everywhere in infinite nature, we need not even begin the hopeless task. No matter how persuasively some near-by event urged its candidacy, it would have no right to be listened to till all the infinite events had been heard from. This would make all discovery of causes impossible.[1]

In short, the work of science is impossible unless we grant that natural causes are contiguous to their effects. This, then, is an *a priori* principle, an axiom of science.

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[1] Cf. A Defence of Philosophic Doubt, by A. J. Balfour, Chapter III.

This principle is an important argument in favor of the Mechanical Theory.

We have here, it seems to me, a complete proof of the doctrine of the mechanical theory that collision is the means, or condition, of the transference of motion. If ball (*b*) moves, ball (*a*) that collided with it, or some other contiguous object, is the cause. (As we saw, the term "collision" implies spatial contiguity.) An object at a distance cannot, then, be the direct cause. Of course, it may be one of a series of causes leading through the intervening space to the contiguous object, or direct cause. We say the sun heats the air about us. In strict literalness this is true only indirectly. For good reasons we emphasize the part the sun plays in a long causal series, yet it is not the direct, or immediate, cause of the higher temperature. This proof, leading back to this axiom, is a more satisfactory proof than that given in the chapter on Motion.

But how can this axiom hold of the physical stimulus of mental states, if these last are non-spatial?

It may occur to the reader to ask, "If this axiom hold, how can we ever determine the material or physical cause of mental states?" for as we shall see a few chapters later, mental events are never spatially related to the physical world. Entirely apart from the question how we discover the part played by our organs of sense, and in fact by our whole body, in affecting our mind, the ultimate means of verifying the truth that the body is the seat and organ of the soul is the fact of its spatial relation to all that we perceive and voluntarily do.

It is this very law of contiguity that enables us to verify the truth of our body being the seat of our mental life.

Assuming then (on the strength of a later chapter) that the mind has a physical organ, What is that organ? How do I know that some events in the centre of the earth are not the causes of all my visual experience? We reply: that according to our principle the physical organ of my perception must be some object that is always contiguous to the object perceived, and that the body is the only object that we can find fulfilling this condition. Our whole life gives us instance after instance of close spatial relationship between the object perceived or acted upon by our minds and our bodies; and our bodies are the only thing in the world that we have to bring into contiguity with the objects in order to perceive them.

Again, in all this mark well, we do not mean to say that this axiom is necessarily brought into play in discovery. It is an axiom for verification, not for discovery. Discovery may be, and perhaps always is, ultimately mere guesswork or chance.

Back of all probability, and so of all knowledge, lies the presupposition that the mind can exhaust a given field of observation. Were this field infinite, we could not get probability in our judgments.

Thus the ability of our mind to exhaust possibilities is presupposed not only in the *a priori* sciences, but also in the *a posteriori* ones.

This process of exhaustion, then, is used in all sciences; and so we have in them the same task as in mathematics. In mathematics the mind is satisfied that its exhaustion is complete. In other sciences it is not thus satisfied. But this subject belongs to Epistemology.[1]

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[1] It is omitted from the chapters on Epistemology in this book because it seems to belong rather to a treatise to discuss it.

CHAPTER XIII

A CRITIQUE OF NATURAL SCIENCE

A critique of natural science.

We have now completed our philosophical reflection on the world without us, or nature, and are therefore in a position to discuss the character and limitations of that part of science given up to the interpretation of nature. This discussion of the character and limitations of science is called a Critique of Science. Hence we are now prepared to formulate, in general outline at least, a Critique of Natural Science.

I. The limitations of natural science. Reality is concrete; science is necessarily abstract.

First, its limitations. We have found that the real world is made up of concrete individual entities; it is not a world of abstractions. We never find triangles, we never find abstract men, children, houses, plants, or stones. Each house is different from every other house, each man is different from every other man, each moment of our lives is never either a mere repetition of past moments of our own lives, or a duplicate of moments in the lives of others. As we walk along the roadside we never find two stones or two blades of grass exactly alike. Look where we will, and find resemblances where we will, things are different; and each thing has its own life or existence, its particular form and character all its own. But science treats the world in a very different way. Science strives, as it were, to break down the differences between things and to treat them as absolutely similar. Science must do so, for its work is to discover not that which differentiates one thing completely from others, but that which unites them all under the same class and law. Therefore science neglects more and more the individual and its peculiarities and deals with the class, or the abstraction that denotes the combined characteristics of the class. Science has no time to give an exhaustive study to every individual triangle, but has done its work when the common properties of all triangles are pointed out, analyzed, and put together again into general laws. Likewise the individual man is no concern of science. Science studies not men, but man; not this tree or that tree, but the class; not the chemistry of some special drop of water, but of water. Thus of necessity the work of science is limited. The individual, and that alone is the reality, belongs not to her. Though her abstract laws hold of the individual, and are obtained by studying the individual, they do not exhaust the individual, but only what we know about classes. They are abstract.

The danger of identifying the real and the abstract.

But we are apt to forget this; and as a consequence, science ever runs into danger of regarding abstract laws as complete or exhaustive interpretations of their objects. But they do not describe the world or any individual in its totality. This ever lies beyond and, as we shall see, ever affords new problems for our knowledge.

Naturalism is guilty of just this error.

Now scientists have of late decades made just this error. Their view is called Naturalism. They have maintained that the world is really made of atoms; that its history is but a great mechanical process of atoms bumping together during countless ages. They have talked as though in truth a physics exhaustively worked out would tell all there is to be told. Is the world not such? they would ask us in surprise. Ah, that depends upon what your ambiguous question means. Perhaps the world is such, but it is surely infinitely more. Your atoms are abstractions; your atoms are all alike. In some respects things are perhaps all alike, but in infinite other respects things are probably all different. Your science tells us of the "some respects"; we ask what has become of the "infinite other respects." Naturalism, or the view that natural science exhaustively describes reality, is an absurdity, and wholly forgets, or fails to see, the abstract character and consequent limitation of science.

A second danger is the fact that our knowledge is finite, but nature is infinite.

Another limitation of science, and at the same time another error in naturalism, is to be seen through the truth that the world is infinite and our knowledge finite. If science predicates of the whole world what is found true of part of the world, it forgets at once the impassable gulf between the finite and the infinite. We may know the laws and origins of solar and sidereal systems, but what are they as compared with an infinite world? Some day perhaps we may know the physics of gravitation and be able to explain it in terms of imponderable atoms in the ether; but, after all, the true infinitesimal atom will always be beyond the finest atom of physics, yes, as far beyond as the infinite is beyond the finite. In short, no matter where we turn, the infinity of nature forces us to regard the conclusions of science as the interpretations only of a finite part of nature, never of her infinite totality. Naturalism that would anywhere put forth the abstract tenets of science as a complete and exhaustive account of nature forgets this.

II. The characteristics of natural science. It is essentially an atomic theory.

Keeping these limitations in mind, let us consider briefly the second point, the characteristics of natural science.

Science should strive to analyze things and seek for means of reducing differences in them to likenesses. This must mean that science should hold before it as an ideal a law in terms of which all phenomena can be expressed and all things be classified. We have seen that in the realm of nature the mechanical atomic theory embodies such an ideal. Natural science must then seek in all things a system of atoms obeying mechanical laws. This is her ideal, no matter how harsh, and often repulsive, it may sometimes appear. The origin of life, the origin of species, and the phenomena of human life, society, and achievement, must be reducible to mechanical laws, just as are the motions of a solar system. Physiology ideally must give place to chemistry, and chemistry, in turn, to mechanics. The ideal science will strive toward an interpretation of nature that is capable of mathematical application. It will strive to predict by mathematical calculation the most complex events of life, as it does the eclipses of sun and moon. No matter how far, how almost infinitely far, science's ideals are removed from her actual achievements, these are none the less her ideals, and every new advance tends but to extend the application of mechanical laws.

But still the value of science is that it can be applied to the individual. It must treat of the secondary qualities and so approach nearer and nearer the individual.

In all this two truths must be kept in view. In order to be of value to us, and do her whole work, science must ultimately deal with individual things also. Her abstract laws are of value, are in fact true, only because they hold of individuals. Therefore the differences between things, or that which differentiates them, must also be kept within the field of study. As a consequence, the more concrete sciences will never give place wholly to abstract physics and mechanics. Chemical phenomena differ from non-chemical, and will therefore always demand a special study. Life differs from the lifeless, and will always therefore demand a special study. Thus, on and on, each separate field has its peculiarities that our minds cannot neglect. In short, we find a tendency that leads us back nearer and nearer to the individual as the special sciences divide and subdivide their fields and problems. But, as we have seen, the study of the individual in its totality would be infinite. Therefore in this return movement of science we see that the ideal of knowledge is really to exhaust everything; but this implies an infinite task.

What, then, constitutes the ideal of natural science? In a sentence: Natural science seeks for those highest or most general laws under which it can bring all types of phenomena and all individual events; and also seeks to coördinate with these more general laws others that are less and less general as we approach nearer and nearer to the individual with all its countless differentiating characteristics.

II. THE PHILOSOPHY OF MIND[1]

CHAPTER XIV

THE DISTINCTION BETWEEN MENTAL STATES AND MATERIAL THINGS

Our mental states are essentially different from the things of nature.

IN our discussions thus far we have talked about the world without us, — the material world, or nature, — and have purposely avoided speaking of that world within each one of us that we call our mental life. To every sane person there is a feeling of difference as he turns from the objects about him, even including his own body, to the soul within him. Likewise, too, when he thinks of the bodies of other men, they seem to be objects of easier observation than are their minds. We see one another's bodies, but how much harder to see the thoughts. The soul has always been, to even the crude thinker, something mysterious. It eludes observation to a degree that material objects never quite do. Of course many material things are invisible even when, like the air, they are all about us. Still even here we have means, direct or indirect, to register their presence. If sight does not reveal it, touch may, or some instrument or chemical will react and betray their presence. But as I sit here alone in my study, are there thoughts and feelings floating about the room as does the air? Would any conceivable chemical or instrument so react to those floating mental states that I could detect their presence indirectly? No, somehow such things are more mysterious even than invisible gases and the imponderable bodies constituting the ether.

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[1] *Introductory Note.*

The student that desires to study carefully and critically the problems belonging to this division of philosophy, is referred to the first volume of Professor Münsterberg's Grundzüge der Psychologie (Leipzig, 1900). Here he will find also many references to other works.

The less ambitious student is referred to G. T. Ladd, The Philosophy of Mind. New York, 1895.

Other general references are the following: —

Lotze, Metaphysics. Oxford, 1887. Book III.

F. H. Bradley, Appearance and Reality. 2d ed., Chapter XXIII, "Body and Soul."

Hugo Münsterberg, Psychology and Life. Boston, 1899. Especially Chapter I.

James Ward, Naturalism and Agnosticism. New York and London, 1899. Vol. II, Part III.

William James, The Principles of Psychology. New York, 1890. Vol. I, especially Chapter VI.

Wilhelm Wundt, System der Philosophie. 2d ed. Leipzig, 1897; Sechster Abschnitt.

J. Rehmke, Lehrbuch der allgemeinen Psychologie. Hamburg, 1894.

A. Riehl, Der philosophische Kriticismus.

They are revealed to us in a different way.

If the desk at which I write has any consciousness, how can I possibly know it? My own thoughts and feelings I do know, but how could I know the thoughts and feelings of an oyster? Perhaps you reply, An oyster or a desk has none. Well, perhaps you are right, but how do you know? All you know is, that if an oyster does think and feel, he keeps his thoughts and feelings so much to himself that you and I find very little evidence, beyond a few reflex actions, of any trace of consciousness; and in the case of the desk no evidence whatsoever. This leads us to ask, How can we ever know mental states other than our own? We reply: Because our fellow-men and the higher animals betray their thoughts and feelings to us. All well and good, but how do they do so? Why do we know that our friend thinks and feels, whereas the desk fails in any way to reveal the presence of consciousness? At once we answer: Our friend talks, he acts, he does what we ask him to do, he learns from us, he teaches us, his face expresses his joy, his sympathy, his sorrow,

But what is this way?

he cries out with pain, he solves problems, he writes us letters.

Are the usual external evidences of mind really conclusive?

But philosophers, you know, never rest satisfied if they can push their questions farther back. So why do these acts and doings prove the presence of consciousness? Might not some world-demon create a body just like our friend's, but put no soul within, and make that body do all the things our friend does? Why not? A great philosopher once looked on the brutes as mere machines. Why might we not have a body with a perfect nervous system and yet no consciousness? "Why not?" means, of course, what positive, direct evidence of consciousness do we have in the one case that we should not have in the other? Now often seemingly unconscious acts are very intelligent, and psychology has indeed shown how easy it is to be deceived about this very point. How often does mere habit cause us to perform most intelligent and complicated acts almost, if not quite, unconsciously. The fingers of the expert pianist run over the keys as he sits there talking to us and seems quite absorbed in the conversation. In short, we have seemingly no absolute surety that any act might not be done unconsciously and purely mechanically.

Without the internal evidence they are not.

If, then, we wish to prove the existence of consciousness in our fellow-beings, logically we are forced to proceed in a very different way. We dare not say our companion has thoughts and feelings because he acts so and so, until we have first proved, or satisfied ourselves, that these acts are in truth the outward expression of thoughts and feelings. But how shall we ever find this out? How? There is clearly but one way. We must start with cases where we can watch both sides, both the outward expression and the inward thought and feeling. Where can we do this? Only in ourselves. Each man in his own case knows whether his outward deed stands for an inward thought or feeling. Then, by analogy, we can conclude that when others do as we do, they have like thoughts and feelings. But the ultimate validity of this argument we must consider later. Here it is enough to notice that the only direct proof of the existence of consciousness can be had by us in the case of our own minds. Only indirectly, if at all, can we get at the thoughts and feelings of others. This perhaps seems very strange. At first thought how sure each one of us is, that although he is not quite so well acquainted with the minds of those nearest and dearest to him as with his own, yet he does know them in part just as well. But notice, we have not said that he does not know them just as well; we have rather said, he does not know them directly as he does his own mind. It may easily be true that others know our minds better than we do ourselves; and often, as the poet has told us, the best place to study ourselves is in others, and others in ourselves. None the less, when we seek for direct perception of thoughts and feelings, we never get this except each in his own mind.

A mind can be revealed directly only to itself.

Thus the fundamental difference between material things and mental states is this. The former reveal themselves directly to many minds, the latter are revealed only to the mind of which they are states. The former are revealed to us through our organs of sense, the latter only through that internal sense which ultimately is one and the same with our consciousness itself. Look where we will, the thoughts and feelings of others are never directly revealed to us. We may know that another feels joy when we see his face light up, his eyes grow bright, and other similar physiological signs appear. But these are not the joy. Again, could we have the means of examining, in finest detail, all the activities in every ganglion cell in his cortex, we should never find there the joy he feels. We might see most complicated gyrations of atoms, their combining and recombining; but these would not be the joy. He feels the joy, though he knows absolutely nothing about the chemical processes taking place within his brain. Surely the dog happy over his dinner knows nothing about his nervous system, yet he is the one that is happy. The happiness is part of his mental life, and is a fact directly present in his consciousness. What better evidence that to know the chemistry and molecular physics of a living brain perfectly would in no way give us the facts present in the dog's mind? These are facts quite independent of both sciences. Thus every attempt to gain a view of another's mind through the examination of his body, or in fact any other body or bodies in the whole realm of creation, promises no success whatever. "It is a well-known doctrine of psychology, that no amount of knowledge of physics and physiology gained by the man born blind will enable him to learn what light is, in the sense that his seeing neighbor is acquainted with it; nor will it help the man born deaf to experience what it is to hear. If, however, some operation gives sight to the blind patient, then there comes to him an experience that in his former state was absolutely impossible. He now perceives the color blue, and knows that he has never done so before. Why is it that the blind can never gain this perception?" The answer can only be, The states of consciousness that alone are revealed to us are our own. Hence the conclusion, it is only by introspection that mental states are revealed to us. As far as the experience of mental facts is concerned, each conscious being is bound absolutely within the four walls of his own mental life.

It is this fact that enables us to differentiate mind and nature.

But what is the bearing of this truth upon our general question, the differentiation of mental states from material things? Just this. All material things and their motions are theoretically objects of common experience. You and I can see the same house, stone, tree, star, sunset; you and I can examine the same body and its parts. It is true each cannot examine his brain and dissect it;

but the only ultimate reason he cannot do so is because we have as yet no satisfactory means of studying most parts of the body without destroying the life of the body. Perhaps some day you and I shall be able to see the internal parts and their acts as we now watch our hands and their motions. Practically all sorts of difficulties may stand in the way, but theoretically the brain or any other material object is a possible object of each one's experience.

In short, the material world is a conceivable object of experience to us all, whereas consciousness is revealed only to itself. Consciousness then cannot be material; for, let us see any material thing you will in all creation, that would never be a revelation directly of a state of consciousness.

The world of nature is extended, is spatial; consciousness is neither.

But if consciousness cannot be a body or the motion of a body, does not this imply that mental states do not, like material things, have length, breadth, and thickness, — that consciousness is not extended? This is a second point of difference between the two.

But if consciousness is not extended, could it be non-extended in the sense that a geometrical point is? Clearly not, as we know it. You and I have often perceived conscious states, but you and I never saw a mathematical point. In fact, as we know, a mathematical point is a mere abstraction, not any concrete entity revealed to us in our experience of the world about us. Surely then, consciousness, as we know it, is not such. But if mental states have no extension and no position (a point is a non-extended position), what are we to say about their location? Clearly there is for us but one answer left: Mental states are not located at all, if we mean by location spatial position. If our mental states are somewhere, they must either be points or have magnitude. They are not points, they have not magnitude; therefore, spatially considered, they are nothing whatever. In short, they are non-spatial entities. "*We must say consciousness is nowhere, meaning thereby, it does not exist in space.*"

Both worlds are made up of events: the one spatial, the other non-spatial.

But how shall we then define mental states, differentiating them from material things and their motion? We must seek for some characteristic common to both, and then for the characteristic that distinguishes them. What is this common characteristic? If we exclude as a characteristic of consciousness all spatiality, the remaining universal characteristic of nature is its existence in time. All things exist in time and their activities take place in time. Is this likewise true of our minds? It surely is. Our mental states precede and follow the one the other. Some last long, whereas others are fleeting. Some are coming into being as others pass away forever. A mental state lasting no time whatever would be a nonentity. Our mental life then, like the great material world about us, exists in time; and thus time forms a characteristic common to both realms of being. Hence our result: Both bodily motions and mental states exist in time; but bodies and their motions alone exist in space. The mental world is merely temporal, whereas the physical world is both spatial and temporal. Both exist in time, and this characteristic is implied whenever we call anything an event. Our mental states and bodily motions are events, the latter spatial events. *Mental states are thus solely temporal events.* We then get this division: —

$$\text{Events}\begin{cases}\text{Physical Events (in both space and time).}\\ \text{Mental, or Psychical Events (in time only).}\end{cases}$$

The conferentiæ, or common properties, consist of the presence of time, duration; the differentiæ, of the presence and absence of spatiality.

Space not necessarily included in the term "existence."

Doubtless this doctrine seems at first very strange. To say that something exists nowhere is like saying it does not exist at all. Surely our mental states are in our heads. This difficulty each one naturally feels for many

The psychology of our prejudice that it is so included.

psychological reasons, and hence psychology had best take the responsibility of satisfying the doubter or the unconvinced. If psychology be fairly familiar to us, a few moments' thought will clear the difficulty. The reason we are so liable to regard the body as the seat of the soul and its life, is because of the intimate causal relationship between soul and body. To see Calcutta we have to be bodily in or near Calcutta. To see or hear we have to have organs of sense and the internal nervous structure. Naturally, then, every moment of our lives seems to reveal some new and intimate relationship between mind and body; but this does not prove that the relationship is a spatial one. The relationship is there; an injury to the body is an injury to the mind. But this relationship will upon examination always be found to be only temporal. Certain mental states and certain bodily states always go together in time. Omit one and you omit the other. Have one and you have the other. Now it is this purely temporal relation that further thought will show to be the source of our popular error, that the body is the spatial seat of the mental life as it is of the bodily life.

Again, psychology will tell us that introspection is the hardest sort of observation. We do not naturally attend much to what takes place within the mind. The child is not interested in itself, but rather belongs to everything about it; and so likewise for most of us, the world that gets our attention is the material, the spatial world. Moreover, our observations of our mental states, unless we are trained introspective psychologists, are usually very untrustworthy. Hence we habitually, yes, instinctively, identify spatial extension with existence. This is why it is so hard to deny spatiality of anything without feeling that it has been robbed of its existence. Still, if we look the facts directly in the face, we shall find that, hard as it may be, we must amend our older habitual beliefs. Mental states do exist; and mental states, as we directly know them, are non-spatial. Their most intimate relationship with the world of body is not a spatial one; and this truth will give a revised meaning to the old statement, "The body is the seat of the mind."

Conclusion.

To sum up our results: We find two characteristics that distinguish mental states from material things. The former lack spatiality, which the latter always possess. The former are facts that can be observed only by the minds whose states they are, whereas the latter are objects that can be observed by many minds. Hence we can formulate two definitions of mental states, the one expressed in negative terms, and the other in positive terms. Mental events are non-spatial events. Mental events are events that can be observed only by the one mind to whose stream of consciousness they belong.[1]

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[1] Cf. Münsterberg, Grundzüge, Bd. I., S. 65 ff.

CHAPTER XV

THE EXISTENCE OF OTHER MINDS THAN OURS

The argument for the existence of other minds is that from analogy;

IF the truth be that only our own mental states are directly revealed to us, whereas the mental states of others are not; can we then, in fact, be sure of the existence of other minds than our own? If we can, what forms the ultimate basis of that surety?

From our previous discussion we have learned that the proof which we accept in daily life of the existence of other minds than ours, is from analogy. Wherever we find a living animal body the possessor of a complicated nervous system, or the author of complicated and definitely adjusted acts, we at once ascribe to that creature a mental life to some extent analogous to our own — the extent depending upon the similarity of its nervous system and conduct to our own. In short, we find that A (ourselves), having properties X (nervous system, conduct, and so on), has also properties Y (conscious states); and therefore we infer that B, C, and D, being known to have quite analogous properties X_1, have also the remaining unobservable properties Y_1. Or more simply still, we say: A is Y; B is similar to A; therefore B also is Y.

But what ought we to say to this argument? It is not our task here to discuss the general validity of the argument from analogy; but even granting that the argument from analogy is ultimately valid, is not this particular one quite unusual? Most inductions admit of a theoretically possible verification. For instance, did we argue that Mars supports life like that on the earth because Mars itself as a planet is similar to the earth, we should be drawing a conclusion which we cannot verify at the present time, and possibly not even in the future. Still it would remain a possibility that some means might at any time be discovered to prove our theory true. Now in the case of concluding by analogy that other minds than ours exist, we draw a conclusion that seemingly admits of no conceivable verification. In short, we are here suddenly confronted with one of the deepest questions the human mind can ask and attempt to answer. Have we any right to infer the existence of a world (namely, the minds of others), the facts of which can never possibly become objects of our observation? Here is, without doubt, a world that lies entirely beyond the bounds of our observation. Quite different from every other argument from analogy, this argument belongs really in a class by itself. How are we to deal with such problems; how can we know a group of facts lying beyond all possible observation? The problem itself we cannot investigate here; but we must reserve it for a later discussion, and be content for the present merely to note its existence.

but it differs from all other such arguments by seemingly not admitting of verification.

Still we are in a position to draw some very definite conclusions concerning our problem. In the study of mind there are two kinds of facts and two sources for facts. First, there are the facts called mental states. The ultimate and only source of these facts is each one's own mental life. Nowhere else can we in any way observe these facts and determine their content. Secondly, there are a vast series of facts that go along with our own mental life, that form what we call the outward expression of that mental life. Such are our bodily acts of one sort or another, our words, our gestures, and our deeds. Then there are the similar sets of facts in connection with the bodies of our fellow-men. These we can study

But to keep within the field of possible verification ultimately, we must seek each in his own mind for all mental facts.

as we do our own bodily acts, nay, often far better; and so much so, that in many cases our knowledge of our own body and its acts can be obtained only indirectly through such study of other bodies and their activities. This statement shows that the ultimate facts of mind are known to us only in our own mental states, and nowhere else. The knowledge we gain through the lives, the words, and the actions of others is, after all, only a help to know and to interpret better the facts given exclusively in our own stream of consciousness.

But this seems to bring us to a very strange conclusion. If the student of mind is forced to find his facts only in his own mind, no matter how he may appear to be studying other minds than his own, then, ultimately, it is only facts within his own mind that he can be studying. But what is true of the student of psychology must, after all, be true of us all in our interpretation, or knowledge, of mind. Each one's knowledge of mind must ultimately be a knowledge only of his own mind. You may know some outward expression of another person, his words, his actions; and you may interpret these ultimately as analogous to words or actions that in your life accompany given forms of consciousness. In short, you may ascribe to another what is known to you only as states in your own mind. Yet you never know another mind in itself; but only as you ascribe your mind, that is, an analogous mind, to another being, do you know his mind. But this is to say that ultimately you know only one set of mental facts, your own conscious states.

The ultimate meaning of the term "another's mind."

What, then, do we mean ultimately by the minds of other beings? *We mean ultimately those facts that form the justification for our ascribing to them minds analogous to our own.* We mean, in short, by others' minds, *those outward bodily expressions that we find analogous to the outward bodily expressions of our own conscious states.* We dare mean no more. If we do, we get beyond our information. We assume a knowledge that, analyzed, proves to be more than a knowledge of our own minds.

Another's mind as a transcendent entity. If we keep to the facts, we must mean only the revealed mind.

But again you object. "Quite true, we do not know another's mind except in so far as analogy may enable us to ascribe to him mental states similar to our own; yet does this prevent us from saying that there are really back of the bodies of other men minds in part like our own and in part probably quite different? Do we not, in short, mean by others' minds something in very truth beyond our own mental states — something that in no way could be included in the very same facts?" To this a final twofold answer.

The existence of minds other than our own we all accept without dispute; but the problem here raised is not whether other minds exist, but only this: What ultimately are the facts on which the assertion that they do exist, is based? Clearly that information includes no mental states other than our own.

The possibility of knowing or affirming a transcendent object we must reserve as a problem for later chapters.

The second question that you will at once raise here is probably this: "Dare we not go beyond our information; dare we not assert the existence of minds whose mental states in no way fall within the facts of our own experience? My brother's mind is never revealed to me directly, for its outward expression I interpret only on the analogy of my own mind and its expression; but dare I not, nevertheless, claim for it an existence, even though the direct revelation of its existence is forever barred from me?"

Your problem briefly expressed is, then: Have we ever a right to transcend the facts that form our ultimate information and affirm the existence of facts that can never be revealed to us? This problem our study of mind has raised, and we shall have to keep it for the present unanswered; but, finally, we must bring it up for the theory of knowledge to answer. If the theory of knowledge shows us, as we believe it will, that such transcendent facts are illegitimate facts, or no facts at all; if it shows us that a fact to be a fact must come within our mind's observation, in short, must be a fact observable by us; then, ultimately, what you and I mean by others' minds must be those outward expressions that we interpret through analogy. Do you say that this is really to deny the existence of any mind, but one's own? Not at all. We are making no denial whatsoever; we are merely trying to interpret what is ultimately meant, and must be meant, if we are rational, by the expression, "other minds exist." Other minds do exist, exist beyond any reasonable doubt, exist as surely, we believe, as does our own mind. But the question is, What, ultimately, do we mean by this, our conviction? Or again, What are the facts it ultimately asserts to exist? Of course, this conclusion still needs the judgment of the theory of knowledge concerning the problem just mentioned ere it can be validly drawn.

CHAPTER XVI

IMMORTALITY[1]

What would constitute a proof of immortality?

Our previous discussion leads us directly to a further problem — a problem that has ever been one of supreme interest to man. How are we to know whether the dead yet live, though their bodies are destroyed?

The problem is related to that of the previous chapter.

This question we shall find to be related to the question: How do we know the existence of minds other than our own? This is true for several reasons. We cannot answer the question of immortality directly by an appeal each to his own mind, for that mind has not yet been put to the test of surviving death; and hence if we are to know what will happen, by a study of what happens now, we are forced to study what happens to other minds than our own. In short, our question becomes at once, Are other minds immortal? If so, by analogy our own also must be immortal. But how are we to know that other minds are immortal? Clearly we must seek and find facts that prove the continued existence of some mind that once was known to us by its manifestations through a body like our own. That is, to prove immortality, we must show that some of these minds continue to be, though death has destroyed their body, in exactly the same way as we should now prove to ourselves the existence of other minds than our own here on earth and in the body. We must be able to find proof of the existence of mental life even when the body to which that mental life belonged no longer furnishes the evidence. In short, we must prove the existence of other minds; but this time other minds no longer in the body. But we have already shown that we can never assert the existence of another mind except in so far as we find some bodily parts, or bodily expression, that by analogy we can identify as an outward manifestation of a mind dwelling in it. The mind of another, as such, is something beyond all possible observation. The only mental states that can be revealed to us directly are our own; therefore there remains but the one source of information, those material objects and motions that by analogy we attribute to mental authorship.

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[1] Portions of this chapter are taken from an article of mine published in the *Educational Review*, Vol. 24, entitled, "Professor Hyslop's Report on Mrs. Piper and the Doctrine of Immortality." The reader is referred to this article.

The proof must consist of bodily acts whose authorship we can identify.

Thus to prove immortality scientifically, that is, by facts gained through sense observation, we must find some physical events whose author must be an intelligent mind, and whose author cannot be any living man, and then, secondly, whose author's character is so definitely marked that we can identify him with the same surety with which we ordinarily identify the author of any invention, book, work of art, or governmental policy. Further, to prove our immortality this disincarnate author must have been a living man or woman like ourselves. Otherwise expressed, we have to seek in the material world for evidence of the continued life of those who have died, just as now we readily find in that same material world evidence of the existence of minds other than our own.

But are there no other means of proof?

But are there no other ways than this to answer the question scientifically?[1] Can we not find out through a study of the minds of those now living what the fate of these minds must be? This question should indeed be answered first. Such evidence would have to be of one of two kinds. First, we should have to show that injury to the body or serious destruction of brain-tissue has no power to annihilate consciousness. Secondly, we might show instead that the substance of the mind cannot be destroyed or annihilated, and therefore that death cannot take away the mind's life.

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[1] The reader must remember that we are here asking only what would constitute a scientific proof of immortality. As a doctrine of religion we shall deal with it in a later chapter (Chapter L).

a. Surely not from physiological psychology.

Let us examine the first of these possible proofs. Manifestly all evidence we have is against such an hypothesis. Injury to the brain certainly causes most serious mental disturbance. In the loss of an organ of sense we have blotted out for us one of the chief sources of our mental life. With aphasia serious mental losses are usually found to be present. In a serious interference with the brain's blood supply, consciousness disappears, at least as far as outward signs are concerned and as far as the person's memory afterward is able to testify. But perhaps the opponent would urge: all this does not prove that the consciousness does not exist. It may be that all outward signs have gone, and it may also be that memory fails utterly to bear witness; but still may it not be that the consciousness still exists, broken off from the main stream? We reply, that from such sheer ignorance on our part you cannot prove that consciousness does exist. Even if we do find that very serious disturbances may happen to divorce large parts of our stream of consciousness quite from the main stream, and that these side streams do still exist, it will not follow that when a far more serious disturbance, such as death, takes place, the lack of all manifestation of consciousness proves its existence. Clearly this would be absurd. To apply to the case of death any such truths as may be learned concerning side streams of consciousness, we shall have to do what our original statement claimed, namely, search *after* death for the evidence, not *before* death. Inasmuch as death does bring in a very new element, we cannot discount it, but must seek for its effects alone where it has taken place.

b. The immortality of a spiritual substance not necessarily an immortality of the personality.

But how about the second possible proof of immortality, the indestructibility of the substance of the mind? This is a very old, but also a very inadequate argument. Even the grossest materialism admits the continued existence of the soul's substance, that is, for it, the matter composing the brain. But, granting that the soul's substance persists, be that substance what it may, this in no way proves that death does not so alter the organization and surroundings of that substance that its old life, or manifestation, can no longer be what it was. And if you urge against this, that the soul's substance is a unit, and that therefore its structure cannot be disorganized, still we have undeniable facts that tell how the soul can undergo changes that mean the temporary loss of consciousness, of memory, and of rationality. If the soul can lose consciousness, or memory, or rationality for two seconds, we are bound to admit the possibility of its losing them forever. Therefore your argument leaves the question just where it was; for what comfort is it to us to be told our soul is immortal, if its life after death be as little a continuation of its present life as are the unconscious moments of the deepest faint or the dread delusions of a raving maniac? The immortality that men seek and count alone worth calling immortality, means a continuation of their present life, its personality and memories. Of this you give no proof whatever.

Thus we are forced back to our original position.

Thus we are forced back to our original position. If we are to prove the immortality of our minds, we must seek for signs after death of the continued life of that mind. Hence our remaining problem is to ask, and to determine as far as philosophic reflection can determine, where shall such evidence be found? If we admit, as we have been forced to admit, that the only source of such evidence of continued mental life will be found within the world's physical manifestations, then it is here we must seek. As there is no evidence of another's mental life but the physical signs or effects of that life, so likewise after death there can be no evidence of another's continued mental life but through some physical manifestation thereof.

This does not mean popular spiritualism.

Now does this mean that you and I are to look, as does popular spiritualism, for strange and fantastic performances after the fashion of miracles? No, it does not, for one very good reason. Any such performance must be explained in accordance with the law of the conservation of energy; and this will mean that we shall never be satisfied with aught but a mechanical explanation of it. But what, as far as our information enables us to predict, will such an explanation always be? It will be that the strange or wonderful performance is due either to the chance working of some forces of nature or to the brain of some living human being. And if these wonderful performances are such that they give evidence of mental authorship, then surely we should be departing from all analogy did we not seek for some human brain as their immediate cause. In short, sooner or later we come to the conclusion that the one place in all the world of physical events where we may expect mind to reveal itself is through the working of some brain. The miracles in a spiritualistic *séance* or elsewhere merely set the inquirer on a search for some man's brain as the cause; and this means some living brain.

As we have seen, the only evidence of another's mind is the bodily expression of that mind. The problem of immortality must fall within this larger problem.

Hence our search for evidence of a life after death must be guided by clews quite different from the wonders of the magician. We must go back again, and ask anew what are the only proofs of the existence of any mind other than our own. The special type of proof now desired must be one of this sort.

What are the more general proofs? As we have seen, you and I never see into one another's minds, and there behold the thoughts as they come and go. "Each of these minds keeps its own thoughts to itself. There is no giving or bartering between them. No thought ever comes into direct *sight* of a thought in another personal consciousness than its own. Absolute isolation, irreducible pluralism, is the law. . . . Neither contemporaneity, nor proximity in space, nor similarity of quality and content, is able to fuse thoughts together which are sundered by this barrier of belonging to different personal minds. The breaches between such thoughts are the most absolute breaches in nature." What would you and I know of the mental life of our nearest friend if that friend were not in the body? He could not talk or write to us, he could not perform those daily acts of life that reveal his character and his aims, his likes and dislikes, his joys and sorrows, his cleverness and moral stability. What should or could we learn without the body to bridge the awful chasm between mind and mind? Clearly nothing; for were this not so, you and I might know just as much about the minds of men whom we have never seen, of whom we have never heard, whose writings we have never read, as we know about those of the members of our own household. But as a matter of fact, we know absolutely nothing about a mind from which we are thus cut off, except in so far as we ascribe to it those general traits that we find present in all the minds we do know. To cut the argument short, you and I are limited to one single class of facts for all information about the minds of our fellow-men, and even for their existence. This class of facts is made up solely of the deeds and activities of their bodies. Their utterances, their writings, their facial and bodily expressions, their work and their play, these and other bodily acts tell all that is ever told.

But right here we have physiology stepping forward and telling us that it is possible to narrow things down even more. Back of the activity and deeds of the body, starting them, guiding and controlling them, are the nervous system and, above all, the brain. The brain is the true and only organ by which mind is able to communicate with mind, by which the gulf between them can be passed. We have no facts whatsoever in all the length and breadth of creation to lead us to hold that mind in any way ever accomplishes aught in this material world of ours except through the brain or nervous system of some animal. Mind wrote Shakespeare's plays; but it used a brain and nervous system to guide the muscles of the arms and fingers in doing so. Shakespeare might, as a pure spirit, have dreamed his plays; but how would you or I now have them, had they not been written by some brain, the servant of his mind? Think as long as you will, search over the wide world, where will you find any other means by which mind reveals itself to its fellow-minds but through some brain?[1]

But, further, the bodily expression must be the outward expression of a brain or nervous system.

And now for the question at issue. If we are to get

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[1] This means, of course, that, as far as we know, the nervous system is the only mechanism the mind directly controls. Whether there be other mechanisms for mental expression is not a question to be answered *a priori*. However, the proof of the existence of other minds must be from the analogy of our own minds and what they do; and the question that raises itself is: What do we take in our own bodily life as the true expression of our mind? In daily life we surely take almost all our outward deeds. But to make our argument absolutely perfect, it may be that we should take only the action of that mechanism which is the direct and immediate organ of mind, whether this be the brain or some unknown mechanism. But may it not be that we should set aside the question of organ altogether and rather emphasize the meaning, or teleology, of our deeds and hold to this as the true outward expression of mind? Against this we might urge the seeming intelligence of unconscious instinctive reactions. Still, in any case, we have to use the best we have; and this means that in daily life intelligent, or teleological, conduct is usually sufficient proof of the presence of mind. Hence it may be that I go too far in saying that the dead would have to reveal their continued existence through some living brain. Perhaps other means of intelligent action might be open to them and be such that it could form the necessary evidence for our proof.

However, as we know mind, it needs a brain to express itself, and hence science should give preference to a search in this direction for the desired evidence. This statement modifies slightly the position taken in the article referred to in the note at the beginning of this chapter.

Thus we must seek our facts among the activities of some living brain; and seek in these facts evidence for personal identity.

any evidence of the life beyond death of a mind that once made itself known to us here on earth, where are we to get that evidence, and what sort of evidence must it be? Where? Why, if at all, through some brain. And through whose brain? Surely not through the old brain now decayed or partly disorganized. But where, then? Surely through the brain of some living man or woman. And what sort of evidence must it be? Ultimately, without an exception, just the same sort that men use to identify the author of any communication. Ordinarily you and I are very uncritical about such identification. Whatever expression comes from Peter's body is without any hesitation at all ascribed by us to Peter's mind. In this way it is a very easy task for us to identify Peter's writing as long as we are present; but put Peter two or three thousand years ago, and make his communication to us only a great-grandchild copy of Peter's own writing, then to make sure that he was the author is no easy task. However, no matter what the occasion, if we are seriously critical, there is but one way on the face of the earth to identify Peter's authorship; and that way is, not to find out whether Peter's brain did the work, but to learn whether Peter's mind did the work. How can we do this? Simply by comparing the communication in question with what we accept as the standard communication of the mind we call Peter's, and thus prove their common authorship. Did the same mind express itself in Othello that expressed itself in Hamlet? That is always the ultimate question. Our friend now talking to us should be judged to be the same Peter as ever, only because the contents and character of his words are those of Peter's old self. Rob the words of every similarity to Peter's words of old, and what proof have you that Paul's mind has not taken Peter's brain? Of course such doings are not in the usual order of things. Of course a moment later Peter may return to Peter's ways and tell us it was he all along. But before Peter comes back to his old self again, in that moment, and judging Peter all by himself, where is your evidence? You have none whatsoever.

Now what does all this mean for our problem? It means just one thing. Either science must give up the whole problem of determining whether life continues after death, and acknowledge itself incompetent to answer the question; or science must seek in living brains and bodies for acts that it can and must ascribe to a mind once known to express itself through a body now dead.

But can such proof be found? Three possible answers.

Thus it follows that the proof of immortality must consist in identifying the authorship of some expression of mind, thereby showing the author now dead to be really alive. Whether such evidence can be found or not admits of three possible answers.

1. Finding the very facts in question.

First, we may actually find the facts here referred to; and then of course we shall have the answer that proves such evidence can be found. But to search for such facts is the work of science, and not that of philosophical reflection.

2. The second objects that the dead would still need a material soul to communicate with us.

The second and third answers attempt to combat the possibility of any such evidence. The second maintains that it is impossible for a disincarnate mind to communicate through the brain of some one now living, for to do this there would have to be some material mechanism accompanying the departed mind, and a mechanical connection between the living brain and this outside mechanism. This would be so, it might be urged, because by the principle of the conservation of energy the brain cannot be acted upon except by some mechanical means. To all this we can only reply, it is a question for science to solve, what the ultimate mechanism is by which the mind acts through the brain. Until we know just what this mechanism is, and until we know that it could not be possessed by a disincarnate mind, we do not know whether such intercommunication is possible or not. All we do know is, that mind acts through brain; and whether two or more minds can act through the same brain we do not know. As far as we know, mind cannot reveal itself to mind but through some brain; therefore, unless disincarnate minds reveal themselves to us in this way we seem cut off absolutely from them.

3. The materialist's objection that the mind depends quite upon the brain for its existence.

The third and last way of answering our question would be by showing definitely that the mind depends upon the brain for its existence, and that without brain mind cannot be. This of course would put an end to the whole question of immortality by solving it in the negative. That this doctrine cannot be established has been, of course, presupposed in our whole discussion of immortality. However, it deserves most serious consideration, yet a very brief consideration. As we have now clearly seen, our one way of knowing minds other than our own to exist is through their brains and the bodily states these brains regulate. Have we any right to twist this statement about, and to say any mind not manifesting itself through some brain does not exist? Clearly this would be a fallacy.

Reply to this objection. No evidence for existence is not evidence of non-existence.

What, then, remains of the opponent's doctrine? Only this: The effect that brain injury or brain condition in general has upon a mind. Yet, the question at issue is not this fact, but only its true significance for immortality.

Now mark well. When our minds betray the effect of brain injury upon them, they simply tell us what is, as far as the mind knows — not what is not. All sorts of possibilities remain. Perhaps the mental states do actually stop existing — perhaps they do so in sleep — and perhaps one condition of their revival is the restoration of normal brain activity. But have we any right to assume that the brain, the only known instrument of their revival, is the only one? We surely have not. Then, again, perhaps even in what seems to be the deepest unconsciousness, conscious life continues to exist, though we do not remember it.

Thus science may be justified in saying: We cannot maintain the existence of a consciousness that fails to manifest itself even to the mind of the person to whom it would naturally belong (for example, when our memory of any mental life during ether intoxication or during any similar period of unconsciousness is *nil*); but science is not justified in saying that no such consciousness exists, or in saying that if it does not, it never will except through a revival of the brain to its normal state. We have perhaps no scientific right to affirm; but we surely have no scientific right to deny.

Conclusion.

What, then, are we to say is the outcome of our discussion?

First, we set aside any philosophic proof of immortality. It is not a question for philosophy to answer, but for empirical science in the light of facts that now escape us, if they exist. As philosophers, we hand over the question to science.

Secondly, our philosophic study of the only way in which mind can reveal itself to mind indicates to us the main lines along which such facts are to be found by science, if found they ever are, or if exist they ever do. The evidence that proves the existence of another mind is from analogy, and to prove it, a resemblance must be established between the physical manifestation of that supposed mind and the physical manifestations of our own minds. Here in the realm of physical events, in the products of some living brain, you and I must search for the only facts that could give us the evidence of immortality.

Whether such facts have ever been found, or ever will be, we as philosophers do not know. That is for science to determine. However, one thing, as philosophers, we have to say: the non-existence of life after death cannot be proved by science. At the most, immortality must remain an open question. We dare not change the proposition, the mind depends upon the brain for its manifestation, into, the mind depends upon the brain for its existence. It may be so, but the evidence for that quite escapes us and always must.

CHAPTER XVII

MENTAL CAUSATION AND CONSERVATION[1]

We have now studied the differentiation of mind from the material world. Then, too, we have studied the character of the proof that might reveal to us the existence of minds other than our own and their destiny after death. We have next to study the laws that govern our minds.

Nature is a continuous series of events which admits of an ideal reconstruction on the part of science.

In the physical world, whenever we behold any event taking place whose cause is not at the time evident to us, we never hesitate to start out in search of such a cause; for we believe it must have existed in some way that would make it evident. Thus you and I go into our sitting room in the morning after a night's rest and look toward the mantel to learn the time from the clock that stands there. We are not surprised to find it ticking away and the hands in a different position from that in which they were when last we saw the clock. Moreover, if we begin to reflect how the hands have moved in our absence, it does not take us long to infer that the taut spring has been gradually releasing its energy as the pendulum permitted, second by second, all night long, and has thereby forced around the wheels that in turn moved the hands. It is quite evident that we could here construct a mental picture of the series of events that have led the one to the other, and that would connect causally the position of the hands at ten o'clock the night before with that at eight o'clock this morning. The same general state of affairs obtains throughout natural science. You and I who live to-day are the lineal descendants of men that lived thousands, and perhaps millions, of years ago; and if we accept the doctrine of animal evolution, we are the lineal descendants of animals that lived millions and millions of years before that. Now no one of us would doubt that there is a series of connecting links from child to parent and from parent to grandparent, and so on all the way back from us to the earliest life whence we spring. Of course no man can work out such a genealogical series for himself, and it is doubtful whether he can even for the race. But none the less we firmly believe that there was such a series, and we seek to reconstruct it here and there from the data that we can find.

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[1] *Parallel Reading.*

The student should read in connection with this chapter pp. 253–259 in James' Psychology (Briefer Course), New York, 1892, or even the whole chapter on Association, also pp. 287–295.

As a further reference, cf. Münsterberg, Grundzüge, Bd. I, S. 77 ff.

Or, again, take the geography of any part of the earth. Geological study reveals to us that great changes have taken place in the course of past ages, making what was once dry land an ocean's bottom, and what was once an ocean's bottom, a mountain top. Now all these changes we believe to have been gradual; but whether they were or not, they resulted because of the definite physical conditions that existed at the time and gave rise to others. Likewise, too, if we find in the Orient or in America the ruins of some ancient city, scholars attempt to give us a mental reconstruction of the place. They work out from the data that they find, a knowledge of the civilization of the people that lived there, how and when the city came to be built, how the civilization died out, and how the place came to be abandoned. In short, we believe there was a series of events that fully explain what we now find, and we believe it is theoretically possible to make an intellectual reconstruction for ourselves of that very series or parts of it. In this way the whole natural or material world in all its past history makes a series in which one stage gives rise to the next; and, theoretically speaking, although this is often not practically possible, we can gain a knowledge of just what state of affairs, or stage, in the series preceded and gave rise to the state that we may be studying.

In the mental world all is different. It is impossible to reconstruct any such continuous series.

However, when we come to the mental world all is different. Theoretically as well as practically, it is impossible for us to reconstruct a series of mental events for any considerable length of time without meeting great gaps in the series that must remain unfilled forever. As you, reader, see the printed words on this page, the vision in your mind is of course a mental state. If we ask whence it came, the only answer we can give is to trace it to certain unknown nervous activities, caused in your occipital lobes, which in turn arose from a nervous shock carried there by the optic nerve from the retina of your eyes. From here we can trace it back to the light reflected by the page into your eyes. Of course this is not the whole story. Psychology tells us that were it not for your past education you would not be able to discriminate at all acutely the little black letters, nor would you be able to recognize the words and their meaning. Further, without such education and mental habits already formed, you could not be interested enough in what you are now reading to pay attention to it.

But here again, if you ask us to reconstruct the series that will explain causally your recognition and attention, that make up such a large element in the mental states we call "reading," what are we to say? What events immediately precede your reading this instant and form the causal explanation of it? There are clearly no mental events to which we can refer. At the best, we shall have to explain it in terms of brain centres and brain paths set into activity by the shocks coming from the retinas into the occipital lobes. True, we have the practical difficulty of knowing next to nothing about these brain centres and paths. Still we do believe they exist, and that were our knowledge only extended enough we could get a complete series of causal events leading from cause to effect up to the very instant when, for some mysterious reason, your mind got the mental states we call reading.

But why not take a case where the point is even more evident? You lie asleep on a couch when suddenly an alarm bell sounds. Immediately you pass from a state of (as far as we know) complete unconsciousness to a condition of consciousness. Now what is the causal series? Surely if the mental world were in this respect like the physical world, we should expect to find that one state of consciousness was immediately preceded by others, its causes or conditions, and they in turn by others, and so on back from moment to moment to the time of our birth. But even there we should not be able to stop any more than we stop there in explaining our physical descent from our parents. We should have to trace this mental world back beyond our birth, not only a few moments or years, but even centuries and æons. Now no such thing is possible. We have not the faintest hope of finding any such complete series of mental states succeeding one another without break from moment to moment. If there be such a mental series, then it lies wholly beyond our ken.

The mental world is a series of quite disconnected parts.

Thus, as we know the mental world, and as we can alone know it, it presents a picture entirely different from that of the physical world. Instead of being one continuous picture, it is made up of many pictures, and these completely separated the one from the other. That is, not only is mind separated from mind, but also one day's, or maybe one hour's, mental life is completely separated from the other within the very same mind. Just as our previous discussion has shown us that the only connecting links between mind and mind are physical events; so, also, do we now find that from day to day and from moment to moment the mental stream within the one mind is constantly broken, and that we have only physical facts to fill up the gaps.

Does this fact necessarily alter our method of interpreting the mental world? There are three problems:

This entire difference between the picture of the world of mental events and that of physical events gives rise at once to questions concerning how far our methods of interpreting the two worlds can be similar and how far they must be different. Let us reflect on this problem. There are three questions to ask.

First: Must we seek for the causes of mental events among physical events, and even go so far as always to do this? Or, on the other hand, can there be a psychology in the same sense that there is a physics; namely, a description of a complete causal series in terms of psychical events?

Secondly: Must we suppose that unknown to us there is, in fact, a complete mental series; though we perceive only those parts of it that make up the mental content of the moment and that memory reveals to us, and must rely for the rest that we know upon analogy? Clearly most of the mental world would have to remain forever hidden because no analogy with our own minds could reveal it; and hence we ask: Could we rightly infer such complete continuity in the mental world as that which we find in the physical world, and explain the insular picture we have of it by the statement, The rest is hidden forever from us?

Thirdly: Can we suppose, or rather must we suppose, that there is for mental events a law of conservation similar to the law of conservation of mass and motion that holds of physical events?

Let us take these questions up in order. In regard to the first question, it is at once evident that in the great mass of instances we must appeal to physical events to give any explanation of why we have the mental states

I. Not only must physical events be appealed to in order to assist in the interpretation of mental events,

that we do. Why do I now see the page of blank paper, the pen and the ink? Why? Amongst other reasons, because physical events give rise to certain unknown occurrences in my brain. In all this world we cannot find any mental event that will explain my perception as it is now explained by the physical stimulus and the brain changes that they cause. If there be such a mental event, it is entirely hidden from us.

But if there cannot be a psychology as complete and continuous as physics, must we go to the extreme of asserting that all our mental states must be explained physiologically, that all psychology must, if perfectly worked out, be a physiological psychology? Can mental states nowhere explain one another causally?

In recognition it looks as though the face suggests the name, and in reasoning it looks as though the premise leads us to the conclusion through its very content or meaning. In memory we often feel that our wills or the significance of the occasion determines the revival of past experience, and in volition we feel that our decision and conduct are the direct outcome of the spiritual struggle. But even in such cases the causal relation is not mental. Seemingly we are forced back to physiology for what explanation we can give, no matter how little that may be.

but they must also serve as the very basis of explanation. The ideal psychology must be physiological.

Now what proof have we for such a conclusion — a conclusion that to many must seem quite radical? The answer is this. As far as we know any given mental state can be followed by any other you wish to name. *A* may be followed by *B*; but why *B* more than *F* or *L*? Or, to express it in the concrete. As I look at my cubical glass ink-well, it makes me think of a cake of ice. Now, if we leave out the chain of physical events in the nervous system, there is no reason whatsoever why it might not have made me think of anything else in place of the cake of ice. That is, *if we were rigidly to exclude* *the influence of physical events*, the succession of our mental states would entirely lack any real uniformity. The same state, *as far as we can ever call two mental states the same*, is just as liable to be followed by any other you may wish to name as by the state that followed it on the previous occasion. You may reply, Similarity or contiguity explains why one mental state is recalled by another. That there is a similarity, or that there is a contiguity, we grant, and even that indirectly a law of contiguity or similarity does work causally; but still, in any given case, why does my mind work according to similarity, the next instant according to contiguity, the next, say, according to recency, intensity, or some other law of association? Ultimately there is no reason but habit or instinct to give me even a clew to an explanation. In short, our minds are a complete enigma to us except in so far as we can bring some order into the confusion by making use of brain physiology. Why *A* should call up *F*, because of the recency of *F*, rather than *G*, associated by long contiguity or close similarity, defies explanation in mental terms; or why *A* is next followed by *G* or *H* instead of by *F*. Our mental states come and go, all according to their own sweet will, as far as the mental picture alone is concerned.

The very fact that new elements are ever being added to our mental life through stimulus from without, makes the physical world an ever present factor.

But why must this be so? Why must our mental life consist of such non-continuous occurrences? There are several reasons. New factors are constantly entering in, and that, too, in such complexity that a succession of purely mental events is never found. Impressions from without the mind are constantly altering our associations. Then, too, there is every reason to believe that the whole basis of association comes to us through heredity, and is only modified by experience. In short, the factor here represented by instinct enters into all our associations, because they are all but modified instincts. Now, evidently, the impression from without must be discussed in physiological terms, as must be also our instincts. Our information gives us in the nervous system alone the means of explaining perception and inherited associations or instincts. Even though you believe that in reality the mental world is not any more fragmentary than the physical, still we are so limited ultimately to observing our own thoughts alone, and others' only by analogy, that our picture of it must be fragmentary even after we have accomplished every conceivable reconstruction. The physical world knowledge can reconstruct from our data into a spatial and temporal continuity; but our mental world can never have its gaps filled up, even though we be obliged, for good reasons, to believe that in reality those gaps do not exist.

II. The problem of Panpsychism.

Now to ask whether those gaps do really exist or not, is asking whether there are mental states outside of our normal stream of consciousness giving rise to all that takes place within it; and whether, when our normal mental life stops, as in sleep or trance or faint, it is followed by outside mental states, its effects. Are our apparently discontinuous mental states but a series of islands raising their forms above an ocean surface and seeming to be but isolated fragments, whereas in reality they are one continuous, but for the greater part submerged, continent? Those who maintain this view and who believe that the mental world is coextensive with the physical are called Panpsychists. If they are right, the mental world, though mostly hidden from our perception, is just such a continuous and eternal series of events as is the physical world. But this problem — the second of our three — we must for the time set aside.

III. The problem of Mental Conservation.

The third problem is that of mental conservation. The answer to this problem must be similar to that of mental causation. We have a very different world to deal with when we come to mind from that which we have in dealing with the material world. The similarity between the two worlds comes chiefly from the intimate relationship between mind and body; and thus truths holding of the body seem almost to hold of the mind, whereas in truth they hold only of those bodily activities which correspond to the mind.

As far as conservation involves spatial relations, it cannot hold of consciousness.

Now, first of all, we have learned that the laws of conservation are ultimately but laws of permanent quantitative relations holding universally in the physical world; and that the mental world is not quantitative in all the ways in which the spatial world is, just because it is not a spatial world. Thus we have quite a different problem when we try to apply quantitative relations to the mind. But to what extent can we find quantitative relations in mental states? Clearly all spatial relations are barred out as being at the most only figures of speech when applied to the mind. We talk about the field of consciousness, its contents, and so on; but consciousness is not spatially a field, nor does it spatially contain. The limitations of its field, as, for example, the limitations of the field of vision, represent literally a spatial limitation only in the sense that the object as perceived has such limitations. The consciousness as consciousness can be limited only in so far as it does not contain at one time all conceivable impressions and ideas. Likewise our power to attend is limited, but not spatially limited.

Nor can there be a conservation of sentient atoms.

Thus we cannot divide up consciousness into geometrical parts. At the best we can divide it up temporally, and we can analyze it into those sentient elements that come to us now in one combination and now in another. Then, too, we can talk about intensity; one pain or one light is intenser than another. But note well: are such differences aught but qualitative? The thought moving slowly through our minds and the same thought rushing quickly by are, when looked at solely as mental states, not the same thoughts, but very different ones. The thing to which they have reference, or which they picture, may be the same; but they are not. A similarity doubtless exists between them; but we cannot say that one is the other lengthened out like the time of a wheel's revolution. The same is true of intensities. Ultimately the only way to apply a standard of measurement to the mind would be to seek ultimate simple sentient elements, and then decide what sentient elements any given psychosis contained. Thus, at the best, our mental life can be measured only in terms of sentient elements that we find for us unanalyzable, or atomic. But, you ask, if this be so, is there not possibly a mental conservation just in terms of these very atoms? Are they not, like the physical atoms, permanent entities; and must we not conceive of consciousness as built of these atoms? No doubt, as a matter of description, we may adopt the results of mental analysis; but the atoms thus resulting do not fulfil the same office as physical atoms. Against the persistence of such mental atoms we can urge many of the objections urged against purely mental causation. These atoms disappear from all observation; they are not conserved like physical atoms. We have no right to suppose that they may not come into existence and go out of existence. Of course this is true also of physical atoms; but in the case of the physical atoms we have the ultimate relations of mass and motion to fall back upon.[1] In the case of consciousness we have nothing of the sort. The only place to get anything approaching conservation is in the uniformity that obtains between mind and brain activity. In short, if we seek relations that are conserved, they must be found in the physical world. This means that the conservation of physical mass and motion must be invoked to explain the phenomena of mind in exactly the same way that it was invoked to explain the secondary qualities. That is, just as we found that the secondary qualities must be interpreted in relation to a world all of whose elements are conserved, so also now do we find that our mental states must in like manner be explained in relation to this same world.

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[1] In fact, the conservation of atoms presupposes space. Two physical atoms otherwise alike can be distinguished by their positions in space. Two sentient atoms, however, could not be so distinguished except as they were observed at one time. From moment to moment we could not tell whether we had the same atom again or a different one. In the spatial world position enables us to do so; but in the mental world we have no position. Thus from moment to moment there could be neither identification nor distinction of atoms. A physical atom, therefore. can theoretically be observed to have a continuous life from moment to moment; not so, however, a sentient atom.

CHAPTER XVIII

THE FREEDOM OF THE WILL[1]

IN the problem of the freedom of the will, we mean to limit ourselves to the question, *Whether all mental events obey the general law of causation just as do physical events?* Does uniformity of coexistence and sequence obtain between mental events and between mental events and physiological events? Can we, theoretically speaking, predict future mental events just as we predict physical events? Or, on the other hand, are some at least of the mental events, namely, those called volitions, or acts of will, exceptions to the general rule? Can we ever under any given set of conditions will, or choose, otherwise than we actually do?

Science presupposes the same uniformity in the mental world as in the physical.

There seems but one answer to be given to this question. All our mental life does come under the general law of causation, exactly as does any other series of events in the world. The work of science, in the case of mind, like its work elsewhere, is to find out the laws of coexistence and sequence. Were our mental states without such laws, we should give up the work of learning their laws. The very fact that we do have such a science as psychology leads one at once to find in science this very presupposition about the mental life. However, its full justification involves a much broader problem than that of the philosophy of mind. The problem is that of universal causation. This we must study later in its general implications; and later still in the theory of knowledge we must determine its validity as a presupposition of all science.

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[1] *Parallel Reading.*

Paulsen, System of Ethics. Translated and edited by F. Thilly. New York, 1899. Book II, Chapter IX.

G. F. Stout, A Manual of Psychology. London and New York, 1899. Book IV, Chapter X.

James, Principles of Psychology, Vol. II, pp. 569 ff. "The Question of Free Will."

A lack of such uniformity would at once transform a cosmos into chaos.

For the present, then, our problem is solely this: Does the science of the mind presuppose the universal presence of causal uniformity there as elsewhere in the world? It certainly does do so. Did mental states arise independently of their conditions, we should have in them purely chaotic events — events with which we could not deal scientifically. But, as a matter of fact, we never treat the mind thus. Of course the conditions giving rise to mental events are liable to be exceedingly complex, and therefore to admit of practical prediction only to a small extent. None the less we try to predict; we study in order that we may predict. We study the relations between character and heredity, between character and environment, assuming throughout the existence of a uniformity for which we seek, or rather whose exact character we strive to learn.

Determinism *vs.* Fatalism.

This does not mean that the mind itself plays no part in its career. That would be not to grant to the mind even what we admit of a billiard ball. The ball's structure, its shape, its weight, all play a part in its history. It, itself, makes up part of the conditions of all its activities. So also does the mind. Necessitarianism, or Determinism, as this doctrine is variously called, in no way asserts that the mind is the mere creature of surrounding conditions. Far from that, for its whole nature must be taken into consideration in all it does. Under the same external conditions we do not expect two different minds to act in the same way. Concrete facts on every hand would contradict such a fatalism.

CHAPTER XIX

THE SOUL AND PERSONAL IDENTITY[1]

We have studied the mind from the point of view of its manifestations. It remains for us to reflect concerning it as a thing to which we ascribe these manifestations. Is there a mind, or soul? What is the soul? These questions must be answered in the reverse order.

What is the soul? **It is not a material entity.**

What is the soul? Men of earlier times and the popular mind even to-day have replied in a way very different from that in which we can now consistently do. A thing to them means some material object; and therefore the thing or substance of the mind is an object that admits of being seen and touched. True, it may not be quite so dense as ordinary objects about us. True, it may generally be invisible and have the power to pass through walls or other obstacles. Yet it is material, and as such occupies space. It is seemingly of a semi-gaseous nature. It is like the breath. It is a ghost.

Such notions of the soul quite fail to take account of the radical distinction we had to make between mental states and material events. Yet even so, this does not entirely explain the difficulty. We all feel in closer touch with the material world than with the mental; and for all of us a material thing has that evident reality we demand of every object to which we ascribe substantiality. Touch and vision are such natural criteria of reality to every one, that whatever admits of neither seems only semi-real. In short, our habit demands that a thing to be a thing must be a material thing. But this habit leads us into error. It is a remnant in us of a primitive manner of thought — a remnant that is to no little degree responsible for the difficulty each one at first feels in accepting the sharp distinction between mind and body. We demand that mental states should inhere in a material being, like colors, or be one of its activities, like physical movements. Yet, as we know, our mental states are totally distinct from the qualities of the spatial world, and are in no sense motions. They are entirely non-spatial. Therefore, when we demand for their support the same material substantiality that we demand for spatial qualities and relations, we are but bringing over from one world to another a system that has no place in the latter.

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[1] If the student has not already done so, he should not fail to read Professor James's very interesting chapter, "The Self," Chapter XII, in his Psychology (Briefer Course).

It is not an object of sense-perception.

This same truth will be evident when we think of the way in which we should have to picture such a material soul. Is it a semi-gaseous, or some other, reproduction of our bodies? Such it certainly has been in the mind of older generations, and such it is still in the minds of those who expect to live, in the world beyond the grave, a life of material companionship. The spirits are seen, are touched. We hold conversations with them. They have bodies, changed it is true, but none the less bodies patterned after the old body of this life. Now if we are to hold to such a material soul, there are but two valid claimants for the office. They are our body and our brain. Any other material soul bears too many marks of being the mere creature of fancy. Any other material soul, to justify itself, ought to be produced by its believers so that its existence may be reasonably evident to our senses. It must be within the field of reasonable experiment to make such a semi-gaseous soul visible or its presence otherwise evident. Yet who nowadays but would feel the experiment ridiculous — who but the extremely ignorant or superstitious? Yes, if a material soul be the thing to which we must ascribe our mental states as manifestations, then two things alone seem likely at present to win acceptance, the whole body or the brain.

However, if the question at issue really rested upon such an argument as that just given, I for one should be disposed to side with either party or neither party. If in truth the soul be material, why may it not be any one of numerous things, any one at least as far as we know? Why may it not be the brain, why not some few cells of the brain, why not some imponderable ethereal object within the brain; and if you believe in the infinite divisibility of matter, why need you stop even there? Such an argument against the older crude notion of the material soul may appeal to the physiologist; but, after all, if we are to reject that or any other material soul, we must search deeper.

Thingness, or substantiality, has quite a different meaning from all this.

The mind is not material; why then by any conceivable right do we demand for it a material substance as its support? True it is, that brain states and mind are intimately connected; yet, as we have seen, the two are entirely different. A material substance in no way supplies us with the needed thingness for the mind. With such a material soul, the mind is not one whit more explicable than without it. If we granted the existence of such a soul this would tell us no more than if we merely said, what all admit, the mind and brain are most intimately related. Still even this is not a satisfactory answer; for we are pushed on to an entirely new problem: What is substance? What is even that material substance we so glibly ascribe to all about us? But this problem we must reserve for a later chapter in metaphysics.

Thingness means the object's unity and permanence of structure.

For the present we must be satisfied with a partial answer, yet an answer given in the light of what is to be said later. Why do we ascribe substantiality, or thingness, to any object? Clearly, as we know, because we can treat that object as a true unity; because it is not a mere conglomerate of parts that have no deeper principle of union holding them together. A rock is more truly one thing than is a heap of sand. An animal is more truly one thing than is a cloud of dust. An atom is more truly a thing than are chemical compounds, because of the unity of its structure and the permanence of its character. In short, what makes a thing a thing is this unity and permanence; and ultimately we shall find that this sums up all we can mean by substance. Thus our question concerning the soul resolves itself into the following: Does our mental life possess that unity of structure and that permanence of character which justifies us in calling it a thing? If it does, then our mind, just because of this unity, is a soul. Its unity is the soul. And the principle and character of this unity are just what we mean by personal identity.

Now the mind has just this unity and permanence of structure; and this constitutes the Soul. It is our personal identity.

When we carefully observe our mental life it is not, as has been thought in past times, a mere succession of mental states. Our mental life is not, as it were, a line of bricks, each brick quite distinct by itself. Our mental life has rather, psychology tells us, to be thought of as a stream. Each successive state flows into the next and is no more separable from it than the river at point x is separable from the river a foot higher up or lower down. In thought we can separate such parts and talk about them as though they were quite distinct things; but in the really existing object we see at once what mere abstractions such so-called distinct things are.

But there is still another truth holding of our mind. This stream of consciousness of which we have been talking is a unity. No matter where we enter it, it is the same stream as that which went before and as that which will follow after. In some very real sense each one of our minds is the same as that which existed yesterday and that will exist to-morrow. To-day's self recognizes the self of yesterday and looks forward to the self of to-morrow. In fact we never get, in our minds at least, such a complete separation of mental states that the stream of consciousness is made up of several minds, one giving place in succession to another. All this has been so admirably described by Professor James that we shall borrow his account of it.

"The thoughts which we actually know to exist do not fly about loose, but seem each to belong to some one thinker and not to another. Each thought, out of a multitude of other thoughts of which it may think, is able to distinguish those which belong to it from those which do not. The former have a warmth and intimacy about them of which the latter are completely devoid; and the result is a Me of yesterday, judged to be in some peculiarly subtle sense the *same* with the I who now make the judgment. As a mere subjective phenomenon the judgment presents no special mystery. It belongs to the great class of judgments of sameness; and there is nothing more remarkable in making a judgment of sameness in the first person than in the second or the third. The intellectual operations seem essentially alike, whether I say 'I am the same as I was,' or whether I say 'The pen is the same as it was yesterday.' It is as easy to think this as to think the opposite and say 'Neither of us is the same.' The only question which we have to consider is whether it be a right judgment. *Is the sameness predicated really there?*

"If in the sentence, 'I am the same that I was yesterday,' we take the 'I' broadly, it is evident that in many ways I am *not* the same. As a concrete Me, I am somewhat different from what I was: then hungry, now full; then walking, now at rest; then poorer, now richer; then younger, now older; etc. And yet in other ways I *am* the same, and we may call these the essential ways. My name and profession and relations to the world are identical, my face, my faculties, and store of memories are practically indistinguishable, now and then. Moreover the Me of now and the Me of then are *continuous;* the alterations were gradual and never affected the whole of me at once. So far, then, my personal identity is just like the sameness predicated of any other aggregate thing. It is a conclusion grounded either on the resemblance in essential respects, or on the continuity of the phenomena compared. And it must not be taken to mean more than these grounds warrant, or treated as a sort of metaphysical or absolute Unity in which all differences are overwhelmed. The past and present selves compared are the same just so far as they *are* the same, and no farther. They are the same in *kind.* But this generic sameness coexists with generic differences just as real; and if from the one point of view I am one self, from another I am quite as truly many. Similarly of the attribute of continuity: it gives to the self the unity of mere connectedness, or unbrokenness, a perfectly definite phenomenal thing — but it gives not a jot or a tittle more.

"But all this is said only of the Me, or Self as known. In the judgment 'I am the same,' etc., the 'I' was taken broadly as the concrete person. Suppose, however, that we take it narrowly, as the *Thinker*, as '*that to which*' all the concrete determinations of the Me belong and are known: does there not then appear an absolute identity at different times? That something which at every moment goes out and knowingly appropriates the *Me* of the past, and discards the non-me as foreign, is it not a permanent abiding principle of spiritual activity identical with itself wherever found?

"That it is such a principle is the reigning doctrine both of philosophy and common sense; and yet reflection finds it difficult to justify the idea. *If there were no passing states of consciousness*, then indeed we might suppose an abiding principle, absolutely one with itself, to be the ceaseless thinker in each one of us. But if the states of consciousness be accorded as realities, no such 'substantial' identity in the thinker need be supposed. Yesterday's and to-day's states of consciousness have no *substantial* identity, for when one is here the other is irrevocably dead and gone. But they have a *functional* identity; for both know the same objects, and so far as the by-gone me is one of those objects, they react upon it in an identical way, greeting it and calling it *mine*, and opposing it to all the other things they know. This functional identity seems really the only sort of identity in the thinker which the facts require us to suppose. Successive thinkers, numerically distinct, but all aware of the same past in the same way, form an adequate vehicle for all the experience of personal unity and sameness which we actually have. And just such a train of successive thinkers is the stream of mental states (each with its complex object cognized and emotional and selective reaction thereupon) which psychology treated as a natural science has to assume.

"But *why* should each successive mental state appropriate the same past Me? I spoke [illegible] while ago of my own past experiences appearing to [illegible] 'warmth and intimacy' which the experiences [illegible] by me as having occurred to other people lack. [illegible] leads us to the answer sought. My present Me is felt [illegible] warmth and intimacy. The heavy warm mass of [illegible] body is there; and the nucleus of the 'spiritual me,' the sense of intimate activity, is there. We cannot realize our present self without simultaneously feeling one or other of these two things. Any other object of thought which brings these two things with it into consciousness will be thought with a warmth and an intimacy like those which cling to the present me.

"Any *distant* object which fulfils this condition will be thought with such warmth and intimacy. But which distant objects *do* fulfil the condition, when represented?

"Obviously those, and only those, which fulfilled it when they were alive. *Them* we shall still represent with the animal warmth upon them; to them may possibly still cling the flavor of the inner activity taken in the act. And by a natural consequence we shall assimilate them to each other and to the warm and intimate self we now feel within us as we think, and separate them as a collection from whatever objects have not this mark, much as out of a herd of cattle let loose for the winter on some wide Western prairie the owner picks out and sorts together, when the round-up comes in the spring, all the beasts on which he finds his own particular brand. Well, just such objects are the past experiences which I now call mine. Other men's experiences, no matter how much I may know about them, never bear this vivid, this peculiar brand. This is why Peter, awakening in the same bed with Paul, and recalling what both had in mind before they went to sleep, reidentifies and appropriates the 'warm' ideas as his, and is never tempted to confuse them with those cold and pale-appearing ones which he ascribes to Paul. As well might he confound Paul's body, which he only sees, with his own body, which he sees but also feels. Each of us when he awakens says, Here's the same old Me again, just as he says, Here's the same old bed, the same old room, the same old world.

"And similarly in our waking hours, though each pulse of consciousness dies away and is replaced by another, yet that other, among the things it knows, knows its own predecessor, and finding it 'warm,' in the way we have described, greets it, saying: 'Thou art *mine*, and part of the same self with me.' Each later thought, knowing and including thus the thoughts that went before, is the final receptacle—and appropriating them is the final owner—of all that they contain and own. As Kant says, it is as if elastic balls were to have not only motion, but knowledge of it, and a first ball were to transmit both its motion and its consciousness to a second, which took both up into *its* consciousness and passed them to a third, until the last ball held all that the other balls had held, and realized it as its own. It is this trick which the nascent thought has of immediately taking up the expiring thought and 'adopting' it, which leads to the appropriation of most of the remoter constituents of the self. Who owns the last self owns the self before the last; for what possesses the possessor possesses the possessed. It is impossible to discover any *verifiable* features in personal identity which this sketch does not contain, impossible to imagine how any transcendent principle of Unity (were such a principle there) could shape matters to any other result, or be known by any other fruit, than just this production of a stream of consciousness each successive part of which should know, and, knowing, hug to itself and adopt, all those that went before, — thus standing as the *representative* of an entire past stream with which it is in no wise to be identified."

Conclusion. Such then is personal identity, and such is that unity we have to ascribe to our minds. Such is its thingness. The very fact that we do identify our present life with our life of yesterday, requires that there be some common standpoint from which the identification can be made. If the life of yesterday be utterly divorced from the life of to-day, how can the Self be more than what is now the content of consciousness? Clearly the very fact of a continued life stretching over years, as does our own, constitutes that very unity, or personal identity, which we call the soul. Our mental states, the life of the moment, belong to this self. They are *my* states, it is *my* mental life; and that I, that continuous stream into which they fit, is the Soul. Clearly such a soul, such a unity in our consciousness, is no figment of our imagination. It is just as truly an element in our mental life as are the individual states themselves. As Lotze puts it: "It has been required of any theory which starts without presuppositions and from a basis of experience, that in the beginning it should speak only of sensations or ideas, without mentioning the soul to which, it is said, we hasten without justification to ascribe them. I should maintain, on the contrary, that such a mode of setting out involves a wilful departure from that which is actually given in experience. A mere sensation without a subject is nowhere to be met with as a fact. It is impossible to speak of a bare movement without thinking of the mass whose movement it is; and it is just as impossible to conceive a sensation existing without the accompanying idea of that which has it, or, rather, of that which feels it; for this also is included in the given fact of experience, that the relation of the feeling subject to its feeling, whatever its other characteristics may be, is in any case something different from the relation of the moved element to its movement. It is thus, and thus only, that the sensation is a given fact; and we have no right to abstract from its relation to its subject because this relation is puzzling, and because we wish to obtain a starting-point which looks more convenient, but is utterly unwarranted by experience."[1]

It is in this sense, and only in this sense, we speak of ourselves and desire a continuation of our life beyond death. An immortality of a soul in a different sense, as we have already seen, would be for us no immortality at all. It is this unity, with its permanent characteristics, that makes up our personality. This unity is the Soul.

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[1] Metaphysic, Vol. I, p. 169 f.

CHAPTER XX

A CRITIQUE OF PSYCHOLOGY

Psychology must include a study of the physical manifestation of the mind.

WE are now prepared to sum up, in the form of a critique, the results of our reflective study of the mind. What first shall we say to the psychologist? His ultimate field is clearly a very limited one, for at bottom the only mind he can observe directly, and therefore study at first hand, is his own. Other minds, if known at all, can be known only through analogy with his own. But what is the basis of this analogy? Clearly the outward, or physical, manifestation of that inner life he would, but cannot, directly observe. Ultimately, then, psychology must be a study of the physical manifestation, if we are to have a psychology that is more than a mere psychology of the individual psychologist himself. Psychology, then, must be a branch of biology, or at least, more generally speaking, a natural science.

Psychology likewise must employ an atomism.

Yet, on the other hand, nothing could be more false than to make psychology only a natural science. It is, and must be, also a mental science. But how can the mind be studied? Ultimately the same principles that hold of the interpretation of the world hold also of our study of mind: It is true — true beyond any reasonable doubt — that our mental states are not mere compounds of parts, like oats in a bin or a heap of stones. Any part of the stream of consciousness, like the whole stream itself, is an organic unity. Just as the human body dissected is no longer the human body, so, also, our mental states analyzed into so-called simple states, or elementary states, are not the living, throbbing mental states of the actual living mind. But not one whit the less, just this very analysis will have to be made. The very tenet we urged so emphatically concerning the world of nature, and to which natural science rightly holds so strongly, is the atomic theory. That atomic theory, we maintained, destroys the living, concrete, organic unity of nature. Your body and my body are not heaps of atoms literally. Yet we found that, to study the human body, or any other material object, means sooner or later to take it to pieces, to analyze it into "simple" elements. As a result we get abstractions, not concrete realities; but these very abstractions are just what science needs. In short, ultimately the atomic theory holds of the mind as it does of nature. It may be indefinitely harder for science to apply it to the mind than it has been for science to apply it to the material world. Nevertheless the problem is there, whether we can solve it or not. That is, a complete study of mind demands the same final analysis of the mental stream as the complete study of matter demands of material objects.

The physical world is alone the world of complete conservation, and therefore the physical explanation must be also the basis for the purely psychical.

But right here we come upon a fundamental difference between the mental world and nature. The mind is best described as a stream and its atom as a point in that stream. But this stream is not absolutely continuous from the point of view of the world at large. Not only are there big gaps in it, such as the hours of sleep and unconsciousness, but it is constantly being fed into from without. We can give no account of the source of these new elements except in mental terms. We have no other account of them to give, but one worded in physical terms. What, then, is the consequence? The physical world is alone that world of complete conservation in which the story of events may be told as an eternal and continuous tale. If any explanation of mind is to be given that will fill in the blanks of the mental stream involved in sleep, in the indefinite ages before our birth, in the sources of our perceptions, and so on, we have to go back into the physical world for it. But more than this, the story of mind demands, just as truly as does that of nature, complete continuity. Hence, ultimately, science must hold that its ideal explanation of mind would be physical. This does not mean that mind is to be identified with matter, any more than the secondary qualities were to be identified with the primary. It means, rather, that the mind is to be related to the physical, and its ultimate uniformities to be expressed in terms of such relationship. *The ideal psychology is a physiological psychology.* Such a psychology would be able when complete to give a continuous history of mind from the lowest life to the highest. It would give likewise a continuous history and explanation of the individual mind. The gaps in our story of the actual succession of psychoses would be filled with events truly bearing upon the mind; and our mental states would be brought into full relationship with nature at large.

But what is the full significance of this view? It means that our mental life must be interpreted ultimately in relation to the physical world and its purely quantitative laws and events, just as we found that the secondary qualities of the physical world itself must be. This does not mean the identification of mind and matter; but it does mean that the purely physical explanation of all events is the fundamental one to which the explanation of other elements and events has to be related.

But, again, such an ideal of psychology leaves no room for a type of freedom of will quite contrary to the necessity, or complete uniformity, of physical events. This likewise in no way denies the existence of spontaneity. On the contrary, spontaneity is of all truths the one upon which our study of nature laid greatest emphasis. What it does mean is the complete obedience of all changes to the causal law.

The ideal psychology will be a physiological psychology.

The ideal psychology will then strive to approach a complete knowledge of the brain or other physical mechanism that is the connecting link between mind and the rest of the body, or, better expressed, the ultimate mechanism of mind. This mechanism, just like any other, will be interpreted in purely physical terms; that is, quantitatively. Its origin, structure, and activities will be explained like those of any other organ of our body. Then, finally, the mental life will be explained by working out the laws of coexistence between it and its physical instrument. Of course this is an ideal, and, consummated, represents a stage of psychology vastly beyond any results thus far attained. Yet it represents something more than a dreamer's ideal. It represents what the psychologist and the physiologist should aim more and more to realize. It represents the truth so widely held among students of the mind to-day, that psychology cannot be divorced from nervous physiology, even though it be true that nervous physiology is mostly mere hypothesis and speculation.

III. ONTOLOGY

CHAPTER XXI

INTRODUCTORY

Our new problem deals with reality as a whole. But what then is this problem?

Having now dealt in the course of our philosophizing with the problems that belong specifically to the two great classes of objects, the material world and mind, we must next turn our thoughts to problems that no longer belong particularly to a mere part of the world or universe, but to reality as a whole. Here, then, we commence our reflective study of the world in its entirety. But often in science it is far harder to decide just what questions we are to ask than it is to discover the answer to them when once definitely formulated. Here we undertake a study of the world as a whole; and evidently the information we shall gain will be in answer to certain definite questions that we must first put to reality. Psychology tells us that to seek, our minds must in some way be prepared for what they are to find; otherwise the unknown object sought for will not be discovered, but will be passed by unnoticed. Having eyes, we often fail to see. Why? Because we had no real eyes for just that truth or just that object. In deep meditation we fail to hear the remarks others make to us, or we pass our friends by on the street and fail to return their greeting. In short, the world does not in most cases reveal its truths unsought for. First, we have to ask what we seek, then the chances are vastly greater that our question will be answered. To know beforehand what we want to hear will help us to hear it. This is what we do each time we listen to catch the tick of the clock. To attend to anything is, as it were, to put to it the question, What are you? But if we do not attend, if we do not ask, even though the answer be for a lifetime right within reach, it will never be ours. Hence we must ask ourselves what it is we wish to ask of reality as a whole; and this is no easy question to answer.

It must raise questions that can be asked of any object.

We are accustomed to ask questions about almost any object that comes to our attention; and why may we not find out what these questions are, and turn them into questions about reality as a whole? What are the questions we might ask about almost anything we can imagine? As we look out of our window, there yonder stands a house. What sort of questions might we ask about it in common with almost anything else? We should not ask what is its color, for some things have no color. We should not ask who lives there, because such a question belongs only to a dwelling, not to trees and stones as well. We should not ask its dimensions, for some things do not have dimension. We should ask rather, (1) Of what stuff, or substance, is it made, or composed? for this we could ask of any existing thing; (2) we should inquire, What is its plan of construction, or what we might call its constitution or organization? This, too, we could ask of anything that can in any way be analyzed into parts. (3) Finally, we could ask, How did the house come to be? This, too, we could ask of anything that has ever come into existence or has in any way changed since it has come into existence. In short, wherever there is a change, we can ask for the conditions, agents, or manner of its occurrence; for as far as we know everything undergoes change, that is, everything has come into its present order of existence out of some past different order, everything from the earth's inhabitants to the earth itself, from one solar system to the sidereal system of which it is a part. They all had a beginning.

We have then three questions to ask. What is the

This gives us at least three questions:

stuff, substance, or essence? What is the constitution? What is the origin? These questions are all fairly easy to understand if one does not ask us too critically just what we mean by them. However, the more carefully we try to answer them the more clearly shall we be able to give their exact import. So it will be sufficient for the present to give a brief statement of how we shall ask them of reality as a whole, and then proceed with our investigation itself.

I. What is the substance of the world? The meaning of the term "Substance."

1. *What is the stuff, or substance, of which the world is composed?* What do we mean by a stuff, or substance? Take water. What is its substance? Oxygen and hydrogen. But what are they? Two forms of matter that have such and such properties, or characteristics. But what is matter? Why, something that manifests itself as occupying space. But what is this something? Here we are caught. We have gone as far as we can. In short, when we are asked what is the stuff, or substance, of which a thing is composed, *e.g.* water, we understand that our inquirer wants to know under what general class of substance we include it. If he wants to know what is the substance of this substance, again we state some more general substance yet. And so on until finally we reach what? The most general forms of existence. Then if he wants to know anything further, the most seemingly that we can reply is to tell him in what ultimate ways this most general substance manifests itself. Now right here we have the definition for which we seek. A stuff, or substance, is something that has certain characteristics, or manifests itself thus and so. In short, when we tell of what material anything, *e.g.* water, is composed, did our inquirer push us far enough, the answer would always run, "It is something that manifests itself thus and thus." Now, the something that does the manifesting is called substance, and its manifestations, or the ways in which it manifests itself, are its attributes. There is another

point for us to notice. Whenever we tell the material of which a thing is made, we have not given its ultimate substance until we are pushed back to the final form of answer. That is, ordinarily we do not give the ultimate substance of things; for example, when we say that houses are made of wood, or that water is composed of hydrogen and oxygen. Now in philosophy, what is meant by substance is this ultimate something, not the intervening materials of which one can ask the very same question, What are they? Substance then is something ultimate, and, seemingly, we are limited to stating its attributes.

Our question gives rise to Ontology.

Now we are ready to give the meaning of our first question, What is the stuff, or substance, of reality? This question is intended to ask, *In how many ultimate ways does the substance of the world reveal itself, and what are these ways?* These two problems together form the *Ontological Problem;* that is, the problem of the essence of the world, or of its attributes.[1]

The Problems and Theories of Ontology.

To state briefly the problems of ontology and the answers they have received. The problems, as we see, are two. The one deals with the number of attributes, the other with the kinds of attributes that substance has. The former problem has been answered chiefly in two ways; that is, the substance of the world has been said to have one attribute and has been said to have two attributes. These doctrines we shall name, respectively, *Monism* and *Dualism.* According to the Dualist, the world manifests itself ultimately as both material and spiritual; whereas the Monist attempts to reduce one of these attributes to the other; that is, either extension to consciousness or consciousness to a form of extension. The latter monistic doctrine is *Materialism;* the former is called *Spiritualism.* Now, besides telling us the ultimate ways in which substance manifests itself, it belongs to ontology also to say what it can about substance as such; namely, apart from its manifestations. *What is substance as such?* Thus our analysis of ontology gives us the following topics to discuss: *Materialism, Spiritualism, Dualism, and, finally, the Problem of Substance.*

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[1] Now "the essence of a thing is that one of its properties which is so *important for my interests* that in comparison with it I may neglect the rest." Hence essence for ontology means those properties that are of importance when we deal with objects in their universal aspects. The two aspects that have been singled out by ontology are materiality, or extension, and immateriality, or spirituality. The student should not fail to read in this connection pp. 354–358 in James' Psychology (Briefer Course), or pp. 332–337 in Vol. II, of his Principles of Psychology.

II. What is the constitution of the world?

2. But what is the meaning of the second philosophical problem, which asked, What is the constitution of the world? By the constitution of anything we mean the parts that make it up and their order; in short, its structure, or anatomy, and, secondly, the interaction of the parts — how they act the one upon the other and thereby fulfil the function of the whole structure, or, to carry out the figure of a living body, its physiology. Therefore by the problem of the constitution of the world or, as it is called, cosmology, we mean to inquire: first, Is the world composed of ultimate parts, or elements, or, what is the same question, Is there but one substance or is there a plurality of substances? and, secondly, If the latter, what is the order obtaining among them? and, next, What are the fundamental laws in accordance with which the activities or changes that constitute the world of events take place?

This question gives us the Cosmological problem, or Cosmology.

The Cosmological Problems and Theories.

If our cosmological theory reply that there is but one substance, it is called *Singularism* or *Pantheism.* If it answer, There is a plurality of substances, it is called *Pluralism;* and, as pluralists, we should be called upon to determine the order, or relation, of the substances. In either case, however, we shall be asked about the great course of events that makes up the life, or process, of the world; and this problem we shall divide into three topics. First, why the world can be regarded as made up of many individual things and their qualities; secondly, how in general these things act and react upon one another, or what is the principle of causation; and, thirdly, how mind and body in particular are causally related?

III. What is the origin of the World, or Cosmogony?

3. Finally we have our third problem. What is the origin of the world, and how has it come into its present order? The answer to this problem is called *Cosmogony*.

We have now a bird's-eye view of the problems that lie before us when we come to study the world as a whole. The problems are three: we seek an Ontology, a Cosmology, and a Cosmogony. We shall take up first the ontological theories; and of these, first of all, the doctrine of Materialism.

CHAPTER XXII

MATERIALISM[1]

The Origin of Ontology and Materialism.

THE philosopher, as such, was seen by us to differ from other people chiefly in his mode of conceiving the ordinary things of everyday life. Each mind has its peculiar interests; and in accord with those interests it analyzes any concrete object, finding there present some abstract element that is, at least for the moment, of supreme import.

This same truth must be taken into consideration when we now ask: What was the origin of ontology, and why did men tend to solve its problems by a materialism rather than by some other theory? If we go back far enough either in the history of civilization or in the development of each man's intelligence, we shall of course come to a stage where such an abstract problem as that of ontology has not as yet made its first appearance. Yet, in spite of this fact, we should find even in these stages of thought a fairly clear, though crude, picture of things in general; and this picture would include an unconscious answer to the ontological problem. But the ontological problem, as such, was not born till some genius struck upon a new way of conceiving things, and brought to man's mind a brand-new question, "Of what stuff is everything made?" This seems a very simple question indeed; but its newness once upon a time made the man that asked it one of the world's greatest geniuses. Who was this genius? The history of philosophy ascribes the question to an ancient philosopher of Ionian Greece, one Thales, who lived about 600 B.C. But, like the rest of us mortals, Thales lived in his own time, was a man of his time, owed most of what he knew and thought to his day and generation and to his surroundings. Both the question and its first answers belonged to their day, even though they were in advance of their day, as does every stroke of genius; and their day, like every other day, was the child, and the natural child, of the days that went before it.

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[1] *Parallel Reading.*

The student should read in Paulsen's Introduction, Book I, Chapter I, pp. 53 to 86, a very interesting account of Materialism.

For the history, and for a more extensive study of Materialism, few would fail to recommend one book, F. A. Lange, Geschichte des Materialismus und Kritik seiner Bedeutung in der Gegenwart. 6th edition revised by H. Cohen. 1898, 2 vols. English translation by E. C. Thomas. London, 1878–1881.

For literature on the materialistic side, the student is referred to Ludwig Büchner, Kraft und Stoff. 16th ed. Frankfort, 1888. (English translation, Force and Matter, by Collingwood. 4th ed. London, 1884.) Also to David Strauss, Der alte und der neue Glaube. Tübingen, 1872 ff. (English translation by M. Blind. London, 1873.)

A shorter account of the history of Modern Materialism is to be found in Weber, History of Philosophy, Section 60; also Section 69. The student should read both these sections.

The chief materialists of modern philosophy are Hobbes and Gassendi, in the seventeenth century; Diderot, La Mettrie, Holbach, and Cabanis, in the eighteenth century, in France; and Feuerbach, Wagner, Vogt, Moleschott, Büchner, and Czolbe, in the nineteenth century, in Germany.

Materialism is a primitive theory.

Now the earliest ontological theories are materialistic; and we may conclude that materialism is naturally the first answer of man to the ontological problem, and this for one special reason, because the primitive way of looking at things is an incipient materialism. Such, in fact, we find it; and this not only in the mind of early civilization, but also in the untrained intellect of our own day. Indeed, we may say that almost all men of to-day are vaguely materialists to begin with, and get beyond materialism only as they are brought into contact with the ontological problem through a study of the thought of the world's philosophic leaders. Nevertheless, as Paulsen says, and as we shall see later, this view of the world can be shown to be also a vague dualism.

Psychology tells us the reason of this. The world without, the material world, is far more powerful in attracting our attention.

The psychology of the child, and in truth of the adult, shows how much easier it is for us all to attend to material objects about us than to our own thoughts. True it is that our thoughts are often intensely interesting, and the boy absorbed in the story-book is rather an example of the power of thought to draw our attention completely away from the material world about us. But this is not what we mean by attending to our thoughts. The content of our thought, the mental image, the story, may be intensely attractive even to the very young child; but it is the content, namely, the mental image of material events that does the attracting. It is the picture, not the thoughts as mental events, that draws away the mind in the fascinating story. Thus, after all, even here the interest is centred upon the world of material things just as much as though we were looking at ourselves or others in a mirror. Not the reflection as reflection, but the picture attracts us. So, too, in the mental picture, the content, in as far as it supplies a reproduction of exciting or interesting material scenes, draws our attention. But what could so remove, for most of us, every particle of interest from the tale as to require us to turn ourselves suddenly into introspective psychologists? Thoughts as thoughts, thoughts or any mental state aside from its content, are never easily apprehended or attended to by us. Thousands of things attract our attention rather than these. Hence it is that man's attention for ages was directed to the material world about him rather than to the mental states within him; and hence it is that the child, and in fact almost every one but the specializing introspective psychologist, attends almost entirely, if not altogether, to the world without. This is true even in our emotions, for they are roused chiefly by impressions from without or by thoughts whose content is of the world without; and in our emotions the emotion itself never seriously drafts our attention to itself as such. Thus it is that man is naturally more impressed by the material world. It is to him the more real world. It is the world he pictures to himself most readily and knows best. The world of mind, as something totally different from the world of matter, does not interest him, attract his attention, or become adequately apperceived.

However, this does not mean that the soul fails to be noticed by the primitive mind, for at even a low grade of civilization theories of the soul and its life are quite common. But these theories are nevertheless materialistic, even when a sharp distinction is made between mind and body. To quote from Professor Paulsen's Introduction, the case stands about as follows: —

However, the primitive view is rather a vague Dualism.

"Common-sense takes note of the visible and tangible objects around it, and gives the following answer to the question concerning the nature of reality as such: The corporeal world is the real world. This view is not necessarily materialistic. Materialism is a product of scientific reflection. In addition to bodies, common-sense recognizes also a different reality, the soul. There is something in living bodies which is not body, at least not real body. No language perhaps exists that has not a word for what we call soul, and that does not attribute reality and essentiality to this soul. The origin of the idea of a soul as a separate existence is, perhaps, to be sought in the following facts. An important and striking difference appears in bodies, the difference between living and lifeless bodies. The former possess voluntary movement, while the latter have not the power of motion; they require an impact from without. The popular inference is that the ground for this difference must lie in the fact that there is a something in the living body that wills and moves, is sensible and feels; that is, the soul.

"That this soul is a separate, independent essence, and not a mere force or quality, is inferred from another fact — one that exerts a profound influence on primitive thought: the phenomenon of death. At death, the living body loses the property which distinguishes it from lifeless bodies; it becomes insensible and motionless. How does this happen? What takes place in death? The body remains what it was a moment ago; externally it is undiminished and unchanged, only it has lost its power of motion. The obvious conclusion, therefore, is that that which moves it, the soul, must have left it. Hence the soul must be incorporeal, else we could see it depart; and it is an independent being. Its separation from the flesh and its continued existence prove this. For the experience of all peoples agrees in the belief that the soul does not perish at death; it can again appear and act. Everywhere anthropology discovers ancestor-worship, a sure sign of the belief in the existence and perpetuity of the departed soul. No one troubles himself about what does not exist. Moreover, the notion is also common to primitive stages of civilization that the soul contemporarily separates itself from the body even during life. The body lies motionless in sleep, but the soul is not inactive; it sees, hears, feels, and at times experiences wonderful things. It dreams, we say. Primitive thought, however, interprets the fact differently: the soul leaves the body in sleep and sets out on a journey of its own, hence it experiences those very things which we call dreams.

"The primitive conception of the nature of the soul is about as follows: It is like the breath; it is visible, but not tangible, having the form of the body, like the real substantial shadow of the body. The connection between life and breath is evidently the reason why so many languages designate the soul as a breath (ψυχή, animus). It might be defined as a substantial image, or the existent vision of the body without corporeality, impenetrability, and weight. Thus Homer describes the departed souls or spirits; so the mediæval painter portrays them; and the superstitious believer in ghosts imagines them in the same way. At the same time these spirits have power to haunt as well as recollection and feeling, though in a changed and weakened form.

"If we wish to refer the ontological view of popular thought to a class, we shall have to call it *Vague Dualism.* Bodies constitute the real reality, but alongside of them there exists a reality of the second order, bodily beings without real corporeality, that are both active in the bodies as efficient forces, and also exist for themselves as departed spirits."[1]

We have here indeed the beginnings of a dualism, but none the less the conception of the soul is clearly materialistic. The soul is something that can be seen, even though of a breath-like or mist-like character.

From all this mental proneness to be absorbed in the material world to the exclusion of the mental world, or proneness to materialize the soul in some form, we can readily understand that when science became far enough advanced to raise the ontological problem, the answer to that problem should have been materialistic; we can understand why the ontological theory should have remained materialistic until there arose philosophers that called attention to the totally distinct character of mental states; and also why men of scientific note, long after the distinction has been made, still tend to fall back into a materialistic view of the world. In a previous chapter we have already sharply distinguished our mental states from material or spatial events; and this distinction disproves materialism. Were it not then for the great part that materialistic ontology has played in the history of science and for the great contributions materialistic philosophers have made to human thought, we might pass on to other theories, neglecting materialism altogether. But on account of these considerations the theory deserves to be expounded.

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[1] Paulsen, Introduction, pp. 53, 54.

Primitive materialism hylozoistic.

The primitive attempt to explain nature sought to account for the changes and events taking place about us in the same way as that in which it accounted for the activities of the human body. Everything in nature is alive, is inhabited by a soul, just as is the human body. Modern materialism, on the other hand, rejects an animistic interpretation and reduces life to a purely mechanical process. The older form of materialism is called Hylozoism. Thus to the hylozoist the world is entirely material, but material in a cruder sense than that of the modern materialist; for to the former matter as such is endowed with life. Hylozoism is, in short, the carrying over in thought to the whole of nature of what man finds going on in his own body. Nature is one great living material world. All things are alive. The processes of nature are the movements of a living mass. It was not till the days of Galileo that a strictly mechanical explanation of nature came to be formulated, and not till then did materialism quite shake off its hylozoistic character.

Later, natural science made it purely mechanical;

Physical science at that time began to bring into being modern mechanics, and soon an almost new science, physiology, sought to explain the activities of the living body mechanically. In the eighteenth century modern chemistry was to have its birth; and from it the old hylozoistic interpretations were to receive a final blow. The tendency of the natural scientists of the seventeenth, the eighteenth, and the nineteenth centuries was in the main materialistic; and these centuries have transformed our picture of nature into that of the vast mechanical processes which we have already considered.

and physiology seemed to identify the mind and

As far as scientific tendencies expressed themselves in an open assertion of a materialistic ontology, they had to show that the mechanical-materialistic explanation they brain-activity;

gave to nature could likewise be given to the mind. The problem was this: Cannot mental phenomena be explained as the activity of the brain, or the mere product of that activity? Is not the brain the organ of mind in the same sense as the stomach is an organ of digestion, or the glands of secretion?

Each new discovery in human physiology, and above all in neural physiology, seemed to be but one more proof that the belief in the soul and its non-corporeal existence and immortality were but superstitions. Experience seemed to indicate more and more that the psychical processes were purely neural. The mind depends upon the brain in every way. Its sensations depend upon the stimulus coming to the brain from the organs of sense. An injury to these organs means a diminution of consciousness, and a severe injury to the brain means a temporary extinction of all consciousness, while its dissolution, we have every reason to believe, means the permanent loss of consciousness.

and finally the doctrine of evolution brought closer together than ever before the world of lifeless matter and the world of life and mind.

Finally, the doctrine of evolution by natural selection seemed to add even additional evidence. We are forced by the spirit of natural science to believe, and hence to search for verification of our belief, that life arose on our earth not through the coming into existence of elementary forces different from those previously existing on the globe, but through the action of those very forces themselves. The origin of life seems to be resolved into a pure problem of chemistry, and that again into one of physics. Likewise, the origin of mind must have been brought about in the same way. It had as its conditions the formation of a more and more complex nervous system. Ample evidence leads the scientist to declare that the human nervous system is but the modified and enlarged nervous system of the lowest animal. The growth of mind then has been conditioned by the same forces as that of the body. The history of the two is quite parallel. "Reference is made to the facts of comparative anatomy. They disclose a thoroughgoing parallelism between the development of the nervous system and soul-life. Brain and intelligence show a corresponding increase in their growth throughout the advancing stages of animal life. Man heads the animal kingdom in intelligence as well as in the size and internal development of his brain, especially of the cerebrum. The same parallelism occurs in the human race. The development of the brain and the civilization of the races run parallel."

Why then ascribe to mind and body two different essences? The mind is to be treated and regarded as one with the physical world in which it lives. Its origin and its ultimate fate are locked together with the origin and fate of the body. The two are one.

Criticism of Materialism.

The data from which to criticise materialism[1] were enumerated when we differentiated mental states from physical events. The sum total of the evidence furnished by materialism amounts only to a theory of the relation between mind and body. That an absolute uniformity of coexistence obtains between the activities of our brain and our mental states, no one will deny. But a relation of uniformity is not one of identity. Here lies the whole battle. Are thoughts brain actions? Are thoughts moving molecules? If any man persists in maintaining that they are, we can ask him, Where are the facts? Did he ever see brain molecules move? "No." Did he ever observe his

All the evidence in favor of Materialism shows at the most only an intimate relationship between mind and body, not an identity.

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[1] It has been thought by many that epistemology gives the true answer to materialism. To the present writer nothing seems more absurd. Even did we accept the Berkeleyan "Immaterialism," materialism need not feel contradicted. The problem of ontology is the question whether all existence as revealed to our minds is spatial, has extension. Berkeley, or any one else, has to admit that part of the world as revealed to us is extended. Now the question arises, Is all of it extended? If so, then no matter what your epistemology, you are a materialist. No doubt most materialists have a very crude and anachronous epistemology, but an answer to their epistemology is not the destruction of their materialism. But compare the following chapter on Spiritualism, and also that on the Determination of the Given.

own thoughts? "Yes." If the two are identical, then he must have seen both. He contradicts himself. If he persists, "Still they are identical;" then there is but one answer we can give him, "Either you or we are talking nonsense, therefore you and we had better stop arguing."[1]

We find here an ultimate truth about our knowledge that leads us into problems to be considered later. In our judgments we are forced back finally to the facts on which our arguments are based, and that is as far as we ever can get. If men differ about facts, their arguments are hopeless. The most we can do is to point directly to the facts involved, and ask our opponent whether he sees them. If he does not, it is time to stop talking and seek more profitable employment. Of course much tact and pedagogical skill are required in pointing out facts; for, as our psychology teaches us, seeking a fact requires discrimination, and discrimination requires two things, proper mental preconceptions, and the proper stimulus from the object we are observing. But when we have done our utmost pedagogically, the rest must depend upon our opponent himself. If he cannot follow, all we can, say is, One of us is right, one is wrong, and further discussion is useless.

Mental states as directly observed are totally distinct from brain-activity.

Such is finally the criticism of materialism. It is a question of observing facts. Are mental states and brain motions identical? Look and see. Direct observation, not argument alone, can tell. Surely for most of us, there will be no trouble to determine whether they are identical or not. The two seem worlds apart. By my thoughts, I mean my thoughts, and not gyrations of molecules. By anger, I do not mean the flush, the contracted brows, the clenched fist, the altered breathing. I mean what I feel. These are felt, it is true; but they are not the anger. I see this paper as I write on it, but the mental state called my perception of the paper is not the paper, nor is the paper it. If I close my eyes, the paper is there. I can feel it by touch, or somebody else can perceive it; but the vision has gone. My thought is no more a brain activity than it is the paper.

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[1] Cf. quotation from Charles Mercier, "The Nervous System and the Mind," in Aikins's Principles of Logic, p. 208.

Strictly speaking, Materialism is in no way an answer to either religious or moral problems.

Before closing our discussion of materialism, one topic more deserves passing mention, that is, the moral and religious tendency of materialism. Materialism actually tends to undermine our belief in God and in the universal validity of our moral judgments. We tend to think that in a world of atoms governed wholly by purely mechanical laws, there is no room and no rational need for God, nor any basis for morality other than the chance working of physical forces that have given rise to certain moral instincts and sentiments in our brains. However, the problems here involved are so very different from those of ontology that we should postpone their consideration. None the less, two truths deserve mention. First, materialism does, no doubt, require a revision of many old-time views about both God and morality. Secondly, materialism as such does not contradict theism or morality. If the world be material, why should God exist any the less? Why may not God be material? The existence of God and duty on the one hand, and the materiality of the world on the other, are very different questions; and if they are held distinct the materialist need not be forced to take issue against either morality or religion. On the other hand, some spiritualistic ontologies in no way contradict atheism.[1] In short, the problem of theism is distinct from the ontological problem. In some of its historic forms it has been a cosmological problem; and in its strictly religious form it is even distinct from both ontology and cosmology.

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[1] *E.g.* Schopenhauer's.

CHAPTER XXIII

SPIRITUALISM[1]

There are two types of Spiritualism.

THERE are two ways in which philosophers have come to regard the essence of the world as spiritual, and hence to reject the doctrine of materialism and substitute for it its direct opposite, Spiritualism. The first way is very radical. It is to find that the facts or events which make up the course of nature as well as of our mental life, are spiritual. This means that any fact which we can produce or to which we can refer, is nothing but a mental state in some mind. There is no existence that is not mental. The other method proceeds quite differently. It argues by analogy, as follows: A mechanical explanation of the changes or activities taking place throughout the whole realm of nature is quite impossible. Such an explanation is ultimately self-contradictory. Whereas, on the other hand, if we go directly to the facts or the changes themselves, and study them as they actually take place, we shall see that their way of coming into being is quite like the way in which our mental states come into being. In short, the course of nature with its countless changes is entirely analogous to the stream of consciousness in our own mental life. Being entirely analogous, we must suppose the two identical in essence, and that means spiritual. Nature as well as mind is spiritual.

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[1] *Historical Note.* The theory that the world is in part or wholly spiritual first arose when modern philosophy had made a sharp distinction between "thought" and matter, or extension. Before that time the substance forming the world's foundation was conceived of as material.

It was Descartes that first made this clear separation of the two substances. As he had called the other the *res extensa*, or matter, he calls the latter the *res cogitans*, or spirit. These two are distinct in nature, have nothing in common, and finally are mutually independent, the one not being produced by the other.

Though this distinction is first clearly and definitely brought out by Descartes, he none the less was not a spiritualist, but a dualist, and sometimes seems almost to verge on materialism pure and simple. The distinction was also made by Locke, but Locke sees no difficulty in regarding spirit as a form of matter. The first two great spiritualists are Berkeley and probably Leibniz.

As the simplest and most common type of spiritualism we may take that of Berkeley. For Berkeley the student is referred to Selections from Berkeley, by A. C. Fraser, Oxford, Clarendon Press; the editor's Historical Introduction and Part I., Metaphysical Immaterialism.

For the History cf. Fraser's Historical Note just referred to.

I. The Berkeleyan Spiritualism.

Let us consider the former type of spiritualism first. Its father and chief representative was the great Irish philosopher, Bishop George Berkeley, who lived from 1685 to 1753. Spiritualistic arguments of the Berkeleyan type are threefold.

(*a*) If the secondary qualities exist only in perception or in our mind, the same truth must hold also of the primary qualities.

The first argument for spiritualism in opposition to materialism is based upon a criticism of that doctrine. It tries to show that materialism itself in its usual form has already done part of this work of criticism, which when completely done, means the rejection of materialism itself. As far back even as Democritus we find that certain qualities of things, the secondary qualities, are believed to have no existence except in the mind of the individual perceiving them. In the same way when we come to the Cartesian philosophy, we find the doctrine that matter has as its only true characteristics, extension and movability, and that the qualities that give richness to the manifestations of the material world, — color, sound, heat and cold, softness, hardness, and so on, — are but mental states, and are not true qualities of matter at all. Now Berkeley saw that the argument against the objective existence of the secondary qualities was really based on no ultimate or fundamental difference between the two classes of qualities, and that therefore materialism would fare ill, if we commenced to question the objectivity of the primary qualities also; for of course it presupposes their reality. The most that can be said in favor of the primary qualities is that they are always present; whereas the secondary qualities undergo changes, that is, come into existence and go out of existence. But the truth that these primary qualities are persistent, does not warrant us in drawing the conclusion that they exist apart from our perceptions. In this respect they are no different from the secondary qualities. If the secondary qualities exist only in perception, there is nothing to warrant our drawing a different conclusion concerning primary qualities.

(b) The world of the materialist and their so-called matter are mere abstractions, not concrete realities.

But more than this, and here is the second argument for spiritualism: What sort of a world is it that the materialist describes as his objective world? Can we picture any such world containing nothing but primary qualities? No. Such a world, as we have seen, is a mere abstraction, and therefore cannot be imagined. To imagine an abstraction we should be obliged absolutely to ignore every other quality than that connoted by the abstract term. But such an empty picture is impossible. A bare extension without color cannot be pictured by the mind any more than a line without breadth or thickness. But if these abstract ideas represent reality, then reality is something that our minds are utterly unable to picture or imagine, and we are led into the absurdity that we know a world that can in no way be imagined. Therefore, the argument contends, the whole structure of materialism consists of nothing but the vague abstractions of scientific definition, and does not represent anything that can be pictured in thought or justified by reason. Though materialists are ready enough to look upon our spiritualistic theory as a contradiction of common sense, they contradict it themselves. In our daily life we mean by the world just what is revealed to us in consciousness, not some vain abstractions that do not admit of a conceivable intuition. The chasm that the materialist is trying to make between the primary and secondary qualities is never seriously made in daily life. For in daily life the heat and cold, the sound and the colors, belong to the object as truly as their length, breadth, and thickness, their parts and their motions.

(*c*) All objects of knowledge are objects of perception, and ultimately we cannot distinguish between the percept and its content. The world is the perceived world, its *esse* is *percipi*.

Yet after all, it is Berkeley's third argument that represents his position and the position of this type of spiritualist most truly. It maintains that the world as really revealed to us, as apprehended by us, is made up of perceptions or mental states. This argument is stated so clearly by Berkeley that we shall give it in his own words.

"It is evident to any one who takes a survey of the objects of human knowledge, that they are either *ideas* actually imprinted on the senses; or else such as are perceived by attending to the passions and operations of the mind; or lastly, *ideas* formed by help of memory and imagination — either compounding, dividing, or barely representing those originally perceived in the aforesaid ways. By sight I have the ideas of light and colours, with their several degrees and variations. By touch I perceive hard and soft, heat and cold, motion and resistance, and of all these more and less either as to quantity or degree. Smelling furnishes me with odours; the palate with tastes; and hearing conveys sounds to the mind in all their variety of tone and composition. And as several of these are observed to accompany each other, they come to be marked by one name, and so to be reputed as one THING. Thus, for example, a certain colour, taste, smell, figure, and consistence having been observed to go together, are accounted one distinct thing, signified by the name apple; other collections of ideas constitute a stone, a tree, a book, and the like sensible things — which as they are pleasing or disagreeable excite the passions of love, hatred, joy, grief, and so forth.

"But, besides all that endless variety of ideas or objects of knowledge, there is likewise something which knows or perceives them; and exercises divers operations, as willing, imagining, remembering, about them. This perceiving, active being is what I call MIND, SPIRIT, SOUL, or MYSELF. By which words I do not denote any one of my ideas, but a thing entirely distinct from them, wherein they exist, or, which is the same thing, whereby they are perceived — for the existence of an idea consists in being perceived.

"That neither our thoughts, nor passions, nor ideas formed by the imagination, exist without the mind, is what everybody will allow. And to me it is no less evident that the various SENSATIONS, or *ideas imprinted on the sense*, however blended or combined together (that is, whatever *objects* they compose), cannot exist otherwise than in a mind perceiving them — I think an intuitive knowledge may be obtained of this by any one that shall attend to *what is meant by the term exist when applied to sensible things.* The table I write on I say exists, that is, I see and feel it; and if I were out of my study I should say it existed — meaning thereby that if I was in my study I might perceive it, or that some other spirit actually does perceive it. There was an odour, that is, it was smelt; there was a sound, that is, it was heard; a colour or figure, and it was perceived by sight or touch. This is all that I can understand by these and the like expressions. For as to what is said of the absolute existence of unthinking things without any relation to their being perceived, that is to me perfectly unintelligible. Their *esse* is *percipi*, nor is it possible they should have any existence out of the minds or thinking things which perceive them.

"It is indeed an opinion strangely prevailing amongst men, that houses, mountains, rivers, and in a word all sensible objects, have an existence, natural or real, distinct from their being perceived by the understanding. But, with how great an assurance and acquiescence soever this principle may be entertained in the world, yet whoever shall find in his heart to call it in question may, if I mistake not, perceive it to involve a manifest contradiction. For, what are the fore-mentioned objects but the things we perceive by sense? and what do we perceive besides our own ideas or sensations? and is it not plainly repugnant that any one of *these*, or any combination of them, should exist unperceived?

"From what has been said it is evident there is not any other Substance than SPIRIT, or *that which perceives*. But, for the fuller demonstration of this point, let it be considered the sensible qualities are colour, figure, motion, smell, taste, etc., *i.e.* the ideas perceived by sense. Now, for an idea to exist in an unperceiving thing is a manifest contradiction; for to have an idea is all one as to perceive; that therefore wherein colour, figure, etc., exist must perceive them; hence it is clear there can be no unthinking substance or *substratum* of those ideas.

"But, say you, though the ideas themselves do not exist without the mind, yet there may be things like them, whereof they are copies or resemblances, which things exist without the mind in an unthinking substance. I answer, an idea can be like nothing but an idea; a colour or figure can be like nothing but another colour or figure. If we look but never so little into our own thoughts, we shall find it impossible for us to conceive a likeness except only between our ideas. Again, I ask whether those supposed originals or external things, of which our ideas are the pictures or representations, be themselves perceivable or no? If they are, then they are ideas and we have gained our point; but if you say they are not, I appeal to any one whether it be sense to assert a colour is like something which is invisible; hard or soft, like something which is intangible; and so of the rest."[1]

Berkeley's argument then is the following: If we know the world we know it as an object of our perception. If

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[1] Berkeley, Principles of Human Knowledge (Fraser). Sections 1–4, 7–8.

Summary of Berkeley's argument.

it be an object of our perception, it is given to our minds, and so is known by us, only as the content of our perception, never as something not contained in our perception. If we declare that the objects which we perceive have an existence apart from our perception, what can we mean? Do we mean that objects exist that cannot be perceived? Are we then to hold that there are two distinct things, our perceptions and these things without our minds? If so, are they alike or different? If they are alike, we must hold that the objects about us outside of our perception have color and sound, and heat and cold. But in spite of all this they are not perceived. But what a ridiculous statement it is that there are colored objects that are not perceived, or objects that are not felt, that there are noises that are not heard. Therefore, if things and qualities in this objective world be like our perceptions, they must be perceptions, and can exist nowhere but in some mind. Therefore, when we say that the world exists, we mean that some mind is perceiving.

According to Berkeley's cosmology, the mind that always does this perceiving is the divine mind. The divine mind perceives the world in its fulness and completeness, and causes finite minds, or spirits, also to perceive certain portions of it. The law and order of nature are ultimately then the law and order of God's perceptions and the law and order of the perceptions that God causes to exist in us. But the material world does not exist except as the content of perception. There is then no such thing as matter apart from mind. There is simply spirit and those manifestations of spirit which we to-day would call states of consciousness.

Criticism of the Berkeleyan Spiritualism.

But what are we to say to this ontological theory? First of all, that what Berkeley tells us is a truism, when he says that you and I get our knowledge of the world through our perceptions. Of course, if we did not have minds, we could not see and hear and feel; and if we

This part of Berkeley's doctrine is a truism.

did not see, hear, and feel, we could not know anything about the world. We should be like the stones in the street. We grant this. Who could be so insane as not to grant it?

Berkeley does not answer the ontological problem as such.

But, and here comes the rub, have Berkeley and the Berkeleyans really answered our question? The ontological problem was this: What are the ultimate characteristics of the world; what is its essence? We did not ask, How is the world known? We asked, What is the world as known to us? Surely the world as known to us is in part at least a material world. Let us grant, for the sake of argument, that the world exists only as perceptions in the mind of each of us. Then our question would run, What is it that you Berkeleyans perceive? You reply, We perceive our perceptions. But what an absurd answer. If we ask a man what he sees yonder in the street, and he replies, "I see what I see," how are we any the better off because of his most truthful information? The materialist may then continue to maintain, the world you perceive is in truth the world you perceive; but when you commence to describe it any farther, you will find it a material world; and that is all I mean.

Hence we may conclude that when Berkeley's doctrine is appealed to, in order to settle the question of whether our minds are material or not, his doctrine is wholly irrelevant and misleading.[1] The ontological problem, in short, falls without, a long way without, the limits of Berkeley's doctrine. It asks, What is the world that you and I know and perceive? Surely when we describe this world we find it made up of stars and planets, sky and clouds, trees and rocks, plants and animals, oceans and continents. Now, ontology asks, What are the ultimate attributes of these things? Are they all material or spatial? Have they all extension or bulk? Are all their activities forms of motion? And those things called minds are they material? Have they breadth and thickness? Or are they quite distinct from material things? Can we, in short, break down the distinction between the mental and the physical, and identify the two? Our earlier discussion showed that we cannot. Then monism has not been proved.

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[1] This argument is purposely confined to one question, that is, Whether or not the empirical world is material or spiritual or both. It is intended in no way to be a criticism of Berkeley's doctrine either in its epistemological contributions or in its assertion of a transcendent world made up of God and the finite spirits. These two sides of his teaching will be considered in later chapters, that is, at least in their main outline, and will there be rejected. To me his great contribution was his doctrine of abstract ideas and of substance.

II. The Second Type of Spiritualism.

But before attempting to establish dualism, we must consider the remaining form of spiritualism, the second one we mentioned at the beginning of our chapter.

The world is ever the scene of continuous and spontaneous change, or activity.

Nature from end to end is a scene of spontaneous change. Turn wherever we will, we find everywhere that the new is coming into existence and the old is passing away. Here I hold in my hand a match. I rub it against some rough surface, and what was before a mere little stick with a brown bulging end is now a bright flame rapidly devouring the wood. What a transformation! Something that once was has gone forever out of existence. Something quite different has taken its place. Where did the old go? Whence came the new? The chemist and physicist might reply: Nothing went out of existence, nothing came into existence; the chemical elements that formed match and air have simply combined in new ways in the ashes and in the gas escaping as the match burned. They are right, of course, in their chemistry; but we have long ago found that the chemist deals with certain abstract characteristics in each thing, and that he neglects thousands of other characteristics which just as truly enter into the total existence of the object. The match was not merely carbon, sulphur, and other chemical elements. It was also that which I saw and touched. But now what I saw and touched is no more. Many qualities have gone, and others have taken their place.

Again, here is an egg. We know from the examination of other eggs just about what we should find if we opened it. There would be the yellow yolk swimming in the so-called white of the egg. Let us put it back into the nest, let the heat of the mother's body warm it for a certain number of days, and a little chick pecks its way out of the shell. Where are the old constituents of the egg we first placed in the nest, — the yellow yolk and the whitish semi-fluid in which it swam? They are gone forever. In their place is something of wonderful structure, of beautiful color, of most complex parts, to the study of whose anatomy months could well be devoted. And this same chick, by devouring yellow bits of corn, by breathing the air, by walking about, pecking away and sleeping away the hours, becomes the full-grown fowl. What a wonderful thing has taken the place of the egg and of the corn! But hold! says the chemist. There is not one atom in that fowl that was not in existence long before the egg was hatched, long before it was laid; yes, ages ago. True, Mr. Chemist; but still there is something new about it all. There may be no new chemical atoms; but we did not put a chick into the nest when we put back the egg. Our senses bear witness to a marvellous substitution having taken place. No sane man can deny it. An egg is not a chick, nor is a grain of corn a feather. The two are altogether different.

Whence the fire? whence the chick? Their chemistry is more or less clear, and we know what to do next time to get others like them. But still, whence this absolutely new feature of reality — the chick? Where is the egg that is no longer? We know much about it, true; but the one thing about which we know nothing is this whence and whither. All we can say is, The old has gone forever; the new has taken its place.

This spontaneity, or perpetual creation of the new, is an element in reality that cannot be accounted for by physics or any empirical science. It makes all the world quite analogous to our mental stream. In fact, it forces us to call the world spiritual.

At this point the spiritualist steps forward and challenges the materialist to enter the fray. What have you, as a materialist, to say to this wonderful birth of a new reality? Your chemistry and your physics fail to explain, fail to account for it, fail, in fact, to say anything whatever about it. True, if you ask us whether we can give any explanation either, we cannot. But still we can do this, we can maintain most justly that no materialistic mechanics will ever explain it; and over and above that we can point out to you another world in which something quite analogous is constantly taking place, — and that world is the mental life of each one of us. Thus we spiritualists can show you materialists that when we look for an analogy by which to describe reality as a whole, that analogy is given us right in our own mental life. Our very stream of consciousness is just such a passing away of the old and spontaneous arising of the new. One thought, one feeling, gives place to another. The stream is perpetually changing. From moment to moment it is never the same. "Now we are seeing, now hearing; now reasoning, now willing; now recollecting, now expecting; now loving, now hating; and in a hundred other ways we know our minds to be alternately engaged." We are changing, also, from month to month, from year to year; our whole outlook on life is different. "What was unreal has grown real, and what was exciting is insipid. The friends we used to care the world for are shrunken to shadows; the women once so divine, the stars, the woods, and the waters, how now so dull and common! the young girls that brought an aura of infinity, at present hardly distinguishable existences; the pictures so empty; and as for books, what *was* there to find so mysteriously significant in Goethe, or in John Mill so full of weight? Instead of all this, more zestful than ever is the work, the work; and fuller and deeper the import of common duties and of common goods." Such is our mental life, and such, too, is nature in which we live. To-day star-dust; to-morrow a solar system. To-day a glowing planet; to-morrow an earth, covered with oceans and continents, mountains and valleys, plains and rivers. To-day the snow falling, the birds gone, the trees standing naked; to-morrow the spring sunshine, the birds returning with song and nesting, the trees and the grass turning green, the field and the garden once more blossoming forth.

Mind and nature are not two worlds, as you materialists rightly maintain; but you make a mistake in taking the cold abstract truths of physics as the world's chief characteristics. The real world is the world of change, ever the old giving place to the new. It is a world of spontaneity. It is a world like our minds. Yes, we must see in them its true analogy. Like them, it is spiritual. "Matter" is but an abstraction exaggerated into a reality. The real is the spiritual.

But, reader, it is high time for us to let the materialist in his cold, matter-of-fact way, "first," "secondly," "thirdly," and so on, throw back some defiance at our spiritualistic friend.

First: materialism in no way denies or says anything whatsoever about spontaneous change. Of course eggs develop into birds. What if they do? Are not eggs material, and are not birds also material?

Secondly, you may be right. Nature may be quite analogous in its perpetual changes to our mental life; but, again, what has that to do with the question whether all things are material, have extension, or not? That is our question. Is mental life a form of motion? You say, "No"; we say, "Yes." Has nature, in all its forms, length, breadth, and thickness? We say, "Yes." Do you dare deny it such attributes?

Thirdly, all materialism asserts is that reality in all its different forms is spatial; and we mean by spatial, has length, breadth, and thickness. What infinite other characteristics it may have is not our concern. About that materialism says neither yes nor no. Whether all reality is spatial or not, is the whole issue. No doubt what you have said brings up a very important problem, but materialism as such you have not answered.

Thus we may conclude: This type of spiritualism emphasizes a truth, namely, that nature is full of spontaneous changes. Thus spiritualism gives us a new problem — the problem of change, which we must discuss in a later chapter. But it does not solve the ontological problem as we have limited that problem; it does not break down the distinction between mind and matter. Hence spiritualism fails to answer materialism. The world is material, but not all of it is material. Some of it is spiritual. And so we must turn for a true theory to dualism.

CHAPTER XXIV

DUALISM[1]

Neither Monistic Theory is right. The distinction between mind and body cannot be broken down. Thus we get Dualism.

SUCH is the conclusion of the battle between the two monistic theories: much that both have said is true; but the materialist talks nonsense when he tells us that our mental states are forms of brain motion; and much that the spiritualist tells us is irrelevant. There is a fundamental distinction between nature and mind; and this fundamental distinction is, that the one is revealed to us as spatial and the other is not. Our mental states exist in time, have duration; the objects of nature all have length, breadth, and thickness, as well as duration.

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[1] *Parallel Reading.*

Read section 18 in Külpe's Introduction to Philosophy (translated by W. B. Pillsbury and E. B. Titchener), London and New York, 1897. For the term Dualism, cf. Baldwin's Dictionary.

Historical Note.

"Descartes is the founder of modern dualism and the typical exponent of dualism in modern philosophy. He makes the conceptual distinction of *corpus* and *mens* fundamental for metaphysics. The 'corporeal' is universally characterized by extension, the 'mental' by thought. Hence there are two substances: a *res extensa* and a *res cogitans*, which exist independently, but stand in reciprocal relation to each other." (Külpe.)

Other Dualists (in the time immediately following Descartes) are the Occasionalists, who try to reconcile the existence of the two kinds of substance with the interaction of mind and body. (Cf. section 54 in Weber's History.) Among the Occasionalists note especially the names Geulincx and Malebranche. In England, John Locke was a dualist.

On Descartes, cf. Weber's History, section 53, and for a much longer account, Kuno Fischer's valuable volume, Descartes und seine Schule, the first volume of his Geschichte der neuern Philosophie, 4th edition, 1897. (English translation by J. P. Gordy, New York, 1887.)

Since the seventeenth century the tendency in philosophy has been toward a monism, but more toward a singularism. We believe that dualism is consistent with the doctrine of one substance back of both mind and body. If this be granted us, the later tendency in philosophy toward a so-called monism (we should say singularism) need not be interpreted as an opposition to such dualism as this book teaches. This later tendency is in opposition to Descartes' dualism, with its two distinct substances.

Our study of the philosophy of nature and of the philosophy of mind should have shown to us the fundamental character of this distinction. In interpreting them we cannot deal with one as we deal with the other. Nature we can interpret as a process of continuous, unbroken change. Change after change throughout infinite time is in accordance with strict mechanical laws, and the amount of mass and motion is always the same. Nature, because of her spatial attributes, offers an entirely different problem to science from that of mind. There can be no such thing as a psychology in the sense that there is a mechanics. The only way in which mechanics can be brought into relation with mind, is through the uniformity of coexistence between activities in the cortex of our brain and our mental states. This coördinates mental states with mechanical processes, but it does not discover in mental states any mechanical attributes.

The two are, then, fundamentally distinct. The one universe contains two types of existence, — matter and mind. It is twofold in its essence; and the two attributes, extension and thought, express this double essence.

There is ample evidence that a sharp distinction between mind and body is made by most thinkers to-day. Hence, though monism is a term widely used, we may look upon most philosophers to-day as dualists in ontology.

As is evident from this note, these terms vary in meaning, and the variety of meanings of the terms spiritualism and idealism (as a type of spiritualism) is a source of further confusion. To us the recent spiritualism (especially of Kantian and Hegelian writers) seems to be rather a purely epistemological doctrine, such as will be maintained later in this book, and it is in no way an answer to the strictly ontological problem.

CHAPTER XXV

THE PROBLEM OF SUBSTANCE[1]

Substance is not a remainder left after the abstraction of qualities, for there would be no remainder.

So much for the way in which the substance of the world manifests itself. Now what is the substance, in and for itself? Take any material object: this paper, for example. Rob it of all its qualities. What have you left? Substance, the substance in which these qualities inhere, the substance to which they belong. But what is this substance? Do you see it? No, you cannot; it has no color. Do you feel it through touch? No, it has no resistance or impenetrability, for these are qualities. How, then, do you get any evidence of its existence? To do anything would be to manifest one of its properties; and all these we have taken away. What, then, is left? Precisely nothing at all. Substance is not something over and above its manifestations. If it were it could in no way be distinguished by us from a sheer nonentity; for to be so distinguished it would have to have qualities or manifest its existence in some way to our perception.

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[1] The purpose of this chapter is merely to raise a problem and to lead the reader's thought from ontology to cosmology.

Historical Note.

The modern doctrine of substance (as opposed to the scholastic) begins with Locke. The moment English Empiricism, with its view that all knowledge comes from experience, begins to ask just what is revealed to our senses in any given thing, the doctrine of substance is revolutionized. The moment it is asked whether substance is revealed to our senses, whether it is manifested to us in any way apart from its qualities, it becomes clear that the older view of substance as an entity in which the qualities inhere, has to give place to another. Substance is manifested to us through its modification; but in itself, *qua* substance, it is not manifested. It is then an "I know not what" lying behind its manifestations. Thus Locke. If we ask what hydrogen or anything is, the answer we always seem to get is, "Something that manifests itself thus and so"; but what this something is, *qua* something, that is, apart from its manifestations, we are utterly unable to say. (Cf. Locke, Essay Concerning Human Understanding, Book II, Chapter XXIII.)

Berkeley goes a step farther and denies outright the existence of this unknowable something, this mere abstraction, matter or material substance. For him, inconsistently, spirit alone is substance. (Cf. in Fraser's Selections, Berkeley's Principles of Human Knowledge, Sections 1 to 33.)

Hume sets this inconsistency aside, and rejects wholly the old idea of substance. (Cf. Hume, Treatise on Human Nature, Book I, Part IV, Sections 3, 4, and 5. These three sections are so important that if the student have time, he should not fail to read them thoroughly.)

For a general survey of this movement let him consult the 34th section in Windelband's History, through page 474.

Yet the term "substance" must refer to some fact.

Are we, then, to conclude that substance is nothing at all, or must we conclude that we ordinarily have a wrong idea as to what substance is? The latter is undoubtedly the correct answer. We are not talking about nothing at all when we speak of substance, for something in the objects about us makes us talk of their substance. So, too, when we talk of the ultimate substance of the world, our thoughts are not wholly wrong; for there must be something of the sort in reality, else this notion would not be held.

Substance is the unchanging element of objects, the qualities, or whatever we can predicate of things, form the changing element.

Though substance is not to be regarded as an entity over and above, or back of, the qualities, or as an entity that can be thought of existing divorced from its qualties, still it is something quite distinct from them. It is that which remains permanent when the qualities change. Substance is that which never changes, but is eternally the same. But substance is more than the changeless. A substance must have an independent existence; in the

With Kant we come to the problem practically in its final form. For the term "substance" and its history and use, including writers in the nineteenth century, the student should consult: Eisler, Philosophisches Wörterbuch, "Substanz"; or Baldwin's Dictionary, "Substance."

language of scholasticism, Descartes, and Spinoza, it is "that which exists in and for itself, and depends upon naught else for its existence." *Complete independence of all else and an endless unchanged existence*, these belong to the substance in which all qualities and changing states inhere.

But a moment's reflection before we proceed farther. What do we mean by "complete independence of all else"? Can we mean aught but just what is said in the other phrase? What better proof of complete independence could we have than to remain from eternity to eternity the same, and this amid the countless changes that make up the course of the world's existence? Of course we might have our substance so divorced from other things that its changes would in no way be due to their interference. It might lead a life unto itself apart from all else.[1] But to be substance it would have to be changeless here likewise. Thus, in either case, to be eternally the same would mark it substance. Substance is the changeless. Quality is that which changes. But we have still to show what part of objects is changeless. Their qualities change, and by definition their substance does not. What, then, is their substance?

Hence whatever claims to be a substance must show itself to retain amid all its changes an eternal identity with itself, or thinghood.

This question we cannot immediately answer, but we can say at once in what direction we must go in search for our answer. In a previous chapter we have learned that objects are called things because, among other reasons, they have a certain unity of structure and stability of character. Now, just these characteristics of thinghood show a close similarity between what we denote by the term and what we denote by the term "substance." Hence we shall do well to ask again, What is meant by the word "thing"? and to try to learn what things among all others claim to be truly substantial, or at least seem to have a right so to do. This information will doubtless point the way to the solution of our present problem.

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[1] The impossibility of such an independent life will be shown later. In such a case we should have not one world, but many worlds.

But this leads us to ask again, What are things?

The world about us in our childhood soon becomes ordered into a world of things; and the world that science pictures to us in our maturer days is not less, nay, it is even more, a world made up ultimately of individual things. There is a great difference, it is true, between the things of popular life and the things of science; yet the principles upon which they are declared things are one and all the same.

Things have individuality.

As we look about us, what are things and what are not? The trees, the houses, the stones, the curtains, the chairs, the carpet — these are things; but should we call the bark on the tree a thing? Hardly. Should we call the paint or a part of one of the chimney bricks on yonder house a thing? Hardly. But then a whole chimney brick, or a whole shingle, separated in thought from the house we should not hesitate a moment to call a thing. The chair is a thing, but is one of its arms a thing? Yes and no. Separated in thought from the chair, by all means it is a thing; yet as part of the chair it lacks the individuality so characteristic of whatever strikes us as a thing. In short, it is just this individuality that marks off this or that as a thing. The particles that make up this piece of sandstone I should hardly call things. Their individuality seems lost in the combination of particles into the larger whole of the stone.

Things have permanence.

Now right here another question. Why do some objects thus in so arbitrary a way stand out as things, whereas others, perhaps their parts, lack this thingness, at least for the time being? Individuality, as we have seen, is one element of this thingness, but is it all? No indeed. The smoke as it passes upward from a cigar is hardly so much a thing as is the cigar, or the steam rising from the kettle as is the kettle. The waves of the sea are hardly so truly things as is the great sea itself. The shadows running along the mountain-side, ever changing their outline, are not so markedly things as is the old mountain itself. The clouds as they drift along the sky are not things to the same degree of thingness as the moon coming out between them. The flames dancing up and down upon the red-hot coals seem hardly so much true things as the coals.

But why this difference? Clearly the old, the enduring, the slowly changing deserves the nobility of thinghood more than the ever changing, fleeting object of a minute's life. To be rightly counted a thing, the object must have individuality, and must seem to us more than a passing shadow. We can take a boulder and split it with a hammer. Its parts then seem to us as truly things as the perfect boulder. They have individuality now.

But where does the process of manufacturing things by the wholesale end? If we pound our rock to the finest dust, the minute particles seem to lack the same right to thinghood that the larger pieces possessed. Clearly they have now lost their individuality. They no longer stand out and assert each his own separate self as deserving our notice. The pieces have become a mere heap. Now much such a process of analysis has been pursued by science. She is ever dissecting the compound into its elements; and what is more, she tends to give to these elements a right to be called things even above the parent compound. But science is here looking at the other aspect of thinghood, and cares more for permanence and changelessness than for visible separateness. It is true that the atoms into which the chemist resolves the piece of stone by his continued analysis seem to our limited vision to have lost the individuality that the stone itself possessed. Still, to those atoms we ascribe an existence of ages and ages. They are more permanent than the everlasting hills. They defy every attempt to destroy them.

Thus we get two classes of objects that form preëminent claimants of thinghood, *i.e.* atoms and souls.

Because of this, the right of thinghood belongs to chemical atoms in a sense higher and truer than to the objects of everyday life, with their more noticeable individuality. Atoms have individuality, if our senses could but perceive it; but, after all, permanence or uniformity of existence is greater than mere individuality, and in the judgment of reason it gives a prior right to thinghood. Atoms are preëminently things. But why stop here? The uniformity of existence that chemical atoms now boast may any day be taken from them and ascribed to more primitive atoms. Thus, when it comes to the last analysis the only ultimate and absolutely true thing would be an atom that is absolutely changeless and eternal.

Besides atoms there are other claimants to ultimate thinghood: *souls.* Our mental life, amid all its countless changes from hour to hour, and year to year, has an individuality and a uniformity of character that make it likewise one life and the manifestation of one thing — the soul. True, the soul's prenatal existence and future life are hidden from us; but for those believing in its eternity, this fact presents no serious difficulty. However, think as we will about that, during its threescore and ten years here on earth, it has the marks of true thinghood.

Thus in the world to which science introduces us there are two great classes of things, — the atoms of the material world and the souls of the spiritual world. These two classes of things claim to be substances; but whether they are or not, we must leave for cosmology to determine.

In short, science seems to be ever trying to reach a thing that is truly substantial. And this leads us to ask in the following chapters

All explanations in this world of ours must come finally to permanent uniformities of existence. As we pass on from the chemical atom to the atom of a higher and higher abstraction, we are approaching more and more toward those ultimate conditions of the material world that we suppose to be eternal. Cosmology, it is true, may find that atoms do not conform to the strict whether the things of science can stand the test of substantiality.

requirements of substantiality. But whether they do or not, the belief in them lies on the path by which we pass, in thought, from the everyday world, with its many changes, nearer and nearer to a form of existence that is changeless, or substantial. *Thus, substance is that ultimate, eternal, unchanging element in our world toward which science, in her atomic theory, keeps pushing.*

And further, to ask whether our dualism presupposes a plurality of substances.

How many such substances there can be in the world, — whether the distinction between mind and matter necessitates the belief in more than one ultimate substance, — we shall see in our next section, on Cosmology.

IV. COSMOLOGY

CHAPTER XXVI

INTRODUCTORY[1]

Our new problem.

We have now discovered the essential ways in which reality manifests itself, and how we must regard the substance or substances involved in such manifestations. This was the ontological problem. A new problem at once awaits us. How is this world, whose essence we have studied, constituted? Is it a world of an indefinite number of absolutely independent things or substances? Or must we deny this and assert the ultimate unity of its substance? And again, whether there be an ultimate plurality or not, how are we to explain the organization of the cosmos? Let us first view the facts that give us our problem.

The facts that give us our problem. I. All things undergo change and interact in spite of their seeming independence.

"To popular opinion the world appears as a plurality of independent objects, each of which has an existence independent of all the rest. True, they are not all totally indifferent to each other; they stand in relation to, and act upon, each other. Nevertheless, this relation of interaction is unnecessary to the existence of each element as such.

"If we look at the matter a little more closely, we shall discover a few further facts that are worthy of notice. In the first place, things act and are acted upon, not occasionally, but *constantly* and *universally.*"

We stand watching the waves break on the seashore. How like an individual living thing each is as it rolls nearer and nearer. On and on they come, each trying to overtake the one before it. How independently each seems to act, even though it repeats so nearly the doings of its predecessors. Finally, as each grows higher and higher, the top begins to curl; it turns, and then in a mad dash ends its life, a little sea of dancing, boiling, struggling foam rushing up the beach's slope. How short was that life, yet seemingly how free and how careless of all else!

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[1] A considerable portion of this chapter is taken from my Syllabus of an Introduction to Philosophy. New York, 1899.

But a moment's thought soon reveals to us how deceptive its seeming independence was. It was driven on by forces from behind and beneath. The wind had set the topmost water of the sea into motion, and little by little with gathered force the water had itself added to the wind's work. As the waves approached the beach the resistance of the sloping shore altered their shape and motion till their onward course and gravitation led them to destruction. How far, then, from independent has been their short career! The wind, the waters pushing from behind, the resistance of the beach, and the attraction of the earth have all played their part. But are even these all that has determined the waves' course? The shape of the beach, the looseness or hardness of its structure, must have played some part. Then, too, how great a part has been played by the tide! Here the waves are high up on the shore, whereas but a few hours ago they were breaking many yards below. But what made the tide? The moon and the sun. What made the wind and gave it its direction and velocity? Ultimately, the sun and the earth. Likewise, what determined the character of the shore? Geology tells of forces as widespread in their influence as our whole solar system. But why do we stop here? Have yonder fixed stars naught to do in the affairs of our solar world? The law of gravitation, the laws of light and heat, must hold of them as of all else. No doubt, then, their attraction, their light, and their heat have played a part, no matter how small the part may be.

But how much more there was in the wave than its onward rush to destruction! We might have taken pains to learn its temperature, and how this came from the surrounding air and water. But whence did they get it? Again we are led to the forces that produce the heat of our atmosphere at given times and places; and how manifold are these forces! Then, too, we might have inquired concerning the changing colors of the wave as it moved on and on. These were due not only to its own molecular structure, but also, above all, to the daylight and the source of that daylight. Moreover, if it be true that water is in itself colorless, and that its seeming color is due to the fine particles held in suspension within, we should be led on to ask the source of this color-giving dust. The ocean bottom, the deposit carried into it by the feeding rivers, the eroded shores and cliffs, the meteors, the meteoric dust, where should we not go to find its sources?

This interaction exists among things throughout all space, and throughout all time.

In short, we are here simply brought face to face, as we should have been had we chosen any other example, with the indefinitely widespread interaction of all the elements of the visible universe. Further analysis of parts and new discoveries of science but keep adding to the universality and the intimacy of this world-wide interaction of thing with thing.

But what is true of our known world in its expanse in space, is likewise true of it in its course through time. The wave breaking on the shore was determined by the wave of the moment before. The wind was caused by forces acting days before, and these again by still other forces reaching back into the infinite past. Could we, and did we, trace its history, we should be led into the past geologic ages, and even to the formation of our solar system. But this, in turn, would be no more a stopping-place than the point at which we started. Likewise, did we look into the future, the effects of the wave will last on into the centuries, to eternity. But what is here true of the wave would in the same way be true of anything else whose history we might strive to build up. Thus, as the elements of the world were found to be interrelated everywhere throughout the realms of space, so, likewise, are they now found to be through the endless course of time; and thus, when we realize that the relations extend through both space and time, they seem truly universal.[1]

The same general truth holds of the mental world.

What is true of the physical world is no less true of the mental world, and all that belongs to it. Men's minds are influenced by their surroundings. The greatest of geniuses is as truly a child of his day as the humblest intellect. If we study his great thoughts, his discoveries, his inventions, we never find that all is new. At the most only a slight change has been made in what the men that went before handed on to him. The historical continuity, where we have the data to work it out, is ever complete. To take a man out of his surroundings, historical, geographical, racial, would be to fail utterly to understand him.

But why delay at this point? Does not evolutionary psychology find in our mind the same product of the ages past that biology finds in the structure of our body? We are what we are mentally partly because of what our ancestors were millions of years ago, and they, in turn, were the offspring of remoter ages. The forces within and without, the environment and the nervous structure, played their part in each generation; and now the result is the effect of their countless contributions. So we might proceed to show how societies and nations, governments and wars, science and art, and all that makes up the larger life of man, are ultimately related to the cosmic forces taking part in the origin and development of our whole solar and sidereal system. Thus a few moments' thought must radically change the popular opinion that the world is "a plurality of independent objects, each of which has an existence independent of all the rest."

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[1] It might be urged that what happens here at this instant is not affected by what happens in the sun at the very same instant, for some lapse of time would be necessary to transfer the effect from place to place. But the moment we add time to space, then what now happens in one place is in relationship to what happens elsewhere; for their causes in the indefinite past and their effects in the indefinite future have ample time to act and react, no one knows how many times.

II. Yet on the other hand there is a true individuality to things. All is not dependence.

However, further thought may lead us back again toward a plurality of such independent objects. The reign of universal law, and the harmony of action whereby each thing plays it definite rôle in an eternal and universal drama — these seem to be beyond dispute, and therefore something that every cosmological theory must take into account. Still, on the other hand, the course of science has been to seek ultimate independent entities — entities, it is true, that conform to universal law and cosmical order, yet entities that are independent, self-existing, eternal, and unchanging.

But further, each one of these entities contributes its part in the combined result. A given blow dealt a billiard ball results in an event quite different from what would have followed had the ball been made of putty. A wax figure reacts very differently to its surroundings from a living man. In short, the individual character plays a part, no matter whether we choose examples from the world of life or from that of dead matter. Therefore any theory of the world that ignores the individual or denies its existence is blind to countless facts of everyday life.

Thus the world is not merely a macrocosm; it is also a system of microcosms. The solar system leads a life at least of semi-independence. It had its origin; it has gone through a long course of gradual development to its present structure. The same thing is true of our earth and of the races of animals and plants that inhabit it, and is true, even to a greater extent, of our chemical atoms, though it would be wrong to say that they have existed from eternity and are to remain existing for all time to come. But even though we find in all these cases the twofold process of origin and disintegration, still we shall not stop seeking farther and farther for microcosms that are eternal. In short, we come to the question; What is the significance of the fact that science searches for such eternal microcosms as well as for universal law and order? If we emphasize the former, we tend toward pluralism; if the latter, we tend toward singularism. But the fact that both tendencies exist in science makes us believe that each has a right to be, and that some means of reconciliation can be found.

These two points of view lead to opposing theories: Pluralism and Singularism.

However, in actual explanations of the world, one group of philosophers has assumed as a starting-point the universal law and order, the other, the individuality of the atom for which science searches. The former has had to explain the possibility of the individual, the latter the possibility of a cosmos made up of individuals. Let us turn to a brief epitome of the resulting theories,[1] their history, and the causes giving rise to them.[2]

(a) *Pluralism.*

Pluralism emphasizes the individual and the part played by the individual in the constitution of the world. Though not denying the unity of the universe, pluralists explain it as a unity made up of individuals.

Its many possible varieties.

We can naturally ask two questions concerning these individuals: first, their ontology; secondly, their cosmology proper, or the relation among them that makes up the order or constitution of the world. The individuals may be thought of as material; we then speak of them as atoms. They may be thought of as spiritual; we then speak of them as spirits, souls, or, sometimes, monads. They may be thought of as material, and yet living and feeling, a doctrine called Hylozoism. Again, we may think of two kinds of individuals, — atoms and spirits. Then, of course, we are dualists. Finally, one theory regards matter as divisible *ad infinitum.* In this case atomism is rejected, and matter is looked upon as a kind of continuous fluid that can hardly be regarded as one or as many. This was the view of Descartes.

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[1] *Parallel Reading.*

For the next three chapters the student can find no better parallel reading (though somewhat difficult) than the admirable discussion of Lotze in the 3d, 4th, 5th, 6th, and 7th chapters of the First Book of his Metaphysics. For very interesting and shorter reading covering many points of Cosmology and Cosmogony, the student is especially referred to Paulsen, Introduction, Book I, Chapter II.

[2] This sketch presupposes on the part of the reader a general knowledge of the history of philosophy. The beginner will do well to omit it and pass at once to the next chapter.

But pluralism has a still further question to answer: Is the sum total of existence these atoms or spirits alone, or is there in addition to the system that these make up, a creator, God? In the former case the unity of the universe is only in the order of the atoms; in the latter case we have in addition some highest atom, or spirit, or world-ground that orders and rules the world of atoms or spirits. The former system is sometimes spoken of as atheism, just as singularism is spoken of as pantheism. The latter system is referred to as theism. Much objection, however, can be raised against this terminology, which is religious in its meaning rather than metaphysical. Much singularism claims to be theistic; much theism of the type mentioned above may be, religiously speaking, atheistic.[1] Such is a brief list of the many forms that pluralism has taken; and it naturally leads us to ask how so many and so various doctrines have arisen.

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[1] We should do better to call the one system singularism, remembering that it is generally called pantheism. The other two systems we can refer to as pluralism, remembering the difference between the two, and that the one is often referred to as atheism, the other as theism, and that these distinctions do not necessarily correspond to those made by religion.

The origin of Pluralism.
It was a theory to explain change.
Pluralism among the Greeks.

Pluralism arose to explain the processes or changes of nature. The Eleatics had denied all change; Heraclitus had said all was change. Neither hypothesis was satisfactory, for both seemed to leave something unexplained that needed explanation. The Eleatics got rid of this need by denying that there is any change to be explained; Heraclitus, by saying that change is ultimate and, therefore, its own explanation.

Empedocles, Anaxagoras, Leucippus, and Democritus take the happy mean. Agreeing with the Eleatics that "Being" is permanent, they none the less acknowledged, with Heraclitus, the reality of change. Therefore they did not, like Parmenides and Heraclitus, deny the need of an explanation. They thought that if the existing, or Being, is permanent, then change cannot be a modification of "Being." "Being" must be made up of individual "Beings," and change must be an alteration of the relations between these individual "Beings," but not an alteration of the "Beings" themselves. Thus by the invention of the pluralistic hypothesis the successors of Heraclitus and the Eleatics are enabled to give an explanation of changes that they can neither deny nor accept as ultimate.

In the metaphysics of Plato and Aristotle we have a sort of dualism; — in Plato, in the distinction between matter and the idea; in Aristotle, in the distinction between form and matter. Both men, however, are pluralists. In Plato we have the τόπος νοητικός peopled with an endless number of ideas. In the doctrine of Aristotle we are told that matter taking on the forms becomes a world of individual things. In Plato the world is subordinate to, or ruled by, one supreme Idea, the good. In Aristotle, there is one supreme Form, pure activity that is never material. This is God, the prime mover of the universe. Thus both are theistic pluralists.

We have so far (*i.e.* up to the death of Aristotle), in the history of philosophy, representatives of the atheistic and theistic types of pluralism. We may take Democritus and, later, Lucretius as the typical atheists; Aristotle as the typical theist.

Theistic Pluralism. Its History

The great theistic system of Greek philosophy is that of Aristotle.[1] But when Christianity came into contact with Greek thought and found itself obliged not only to formulate the doctrines of the church, but also to construct apologetically a philosophy founded upon them, and meeting the intellectual needs of the times, there resulted finally, in the teachings of St. Augustine, another great theistic system. His cosmology is different from that of Aristotle, and contains great original contributions to human thought. These two types of theism — that of Aristotle and that of St. Augustine — have continued to exist ever since in Europe, and in the Christian church. In the Aristotelian scholasticism, and especially in the system of St. Thomas Aquinas, we have the former type. In the Augustinianism of the Jansenists and the Protestant Reformers we have theism of the latter type. Both systems were ever in danger of passing over into pantheism; and Spinoza's doctrine of substance is doubtless the logical outcome of Aristotle's.

The history of pantheism, on the other hand, belongs especially to modern philosophy. Pantheism is the result of the natural philosophy of the Renascence, and again, as just said, of the working out of the Aristotelian doctrine of substance to its full conclusion in Spinoza. In the Post-Kantian writers we have once more a strong pantheistic tendency.

Its point of view is ethico-

To pass from this brief statement about the history of the two doctrines: What is the fundamental difference religious, as opposed to that of pantheism, which is purely intellectual.

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[1] *Parallel Reading:* Cf. Weber's History of Philosophy, on Aristotle, St. Augustine, Berkeley, and Leibniz; Windelband's History of Philosophy, Sections 20, 27, and 29.

in their point of view? It is the difference between the intellectual and the ethico-religious interpretation of the universe.

In the intellectual interpretation of the universe the chief motive is to find a ground of the universe that explains its origin, its nature, and its processes. The intellect in no way cares what this ground is, as long as it serves the purpose of explanation, nor how rudely this explanation may dash to pieces the hopes and longings expressed in the moral and religious life of the time. In what is called the individual it sees a stumbling-block that it must try to explain away, rather than a principle that it must make the basis of its explanation. What is sought is an explanation of the universe as a unity. The world explained as a unity is the ideal of reason, and the very essence of rational interpretation. The individual and change must be conceived of in harmony with this unity and explained by means of it.

The ethical and religious interpretation, on the other hand, is strongly individualistic. Man, interpreted as a moral being, must be regarded as an individual, free and responsible for his conduct. From the religious standpoint, the ground of the world must possess personality. The moral and religious nature maintains that man's special relations to this ground (responsibility, dependence, and redemption) can exist only in case the latter be a spiritual personality.

For pantheism the individual is but a mode, or modification, of the creator. It has no independent existence, for its nature and doings "follow necessarily" out of the essence of the ground of all things. But then, so the theist urges against the pantheist, human conduct is as nonmoral as the beating of waves on the seashore or any other process in nature.

The solution of the

How is the conflict between these two theories to be removed? We have in this controversy two fundamental interests. Each of these interests has a right to interpret reality from its own standpoint and in accordance with its own principles. In fact, the two are entirely different; their problems are not the same, and when carefully distinguished should never come into conflict, because their fields do not overlap. It is true, this leads to at least a twofold interpretation of the universe. But as we shall see, it appears to be the highest and best decision of our century that for the finite mind the two interpretations cannot be unified. In short, the distinction between the intellect and the ethico-religious consciousness is for the finite mind ultimate.

conflict between the two.

We may then conclude that the explanation of the world as a unity, of its processes as following necessarily out of the world-ground, and of the individual as but a modification of that world-ground, is the ideal for the intellect in its interpretation of reality. The moral consciousness, on the other hand, demands an individual morally responsible and a world-ground whose character it can interpret by such words as good, perfect, and to which it can ascribe, however paradoxical, both personality and infinity. But it belongs, not to cosmology, but to the philosophy of religion to remove the apparent contradiction between these two views of the world.

Atheistic Pluralism. **Its opposition to theism.**

The controversy between atheistic pluralism[1] and pantheism is one with that between pluralism and singularism. Atheism, as a form of pluralism, is, strictly speaking, in conflict only with the contrary theory — theism. Atheism argues, we have no evidence of the existence of any word-transcending ground. It finds in theism an inconsistent pantheism, which presupposes the very doctrine at issue and then tries to explain the world, not rationally, but teleologically, in the light of this assumption. It maintains, in short, that theism interprets the world in a way inspired not by man's intellect, but by his moral and religious desires. It presupposes that the world was made to suit the desires and wishes of man, or that man is the end of creation. Pantheism it can understand and treat seriously; theism it regards as a remnant of mythology unworthy of scientific recognition.

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[1] *Parallel reading:* Paulsen, Introduction, pp. 158–180.

Atheism, like pantheism, is doubtless right in feeling that the theist has had other than purely intellectual motives. However, if atheism be naturalistic, or deny the right of any other interpretation of reality than one in terms of science, the controversy is no longer between atheism and theism,[1] but between naturalism and the doctrine that the universe is not susceptible of interpretation on any single principle.

The theist's appeal to teleology.

Theism has demanded an explanation of the order, the perfection, and the presence of final causes that it claims to discover throughout the world. It sees in the results of human intelligence and volition events of the same character as (though less perfect than) those found in the great processes of the world. Having in what man produces an example of what mind has wrought, it argues by analogy to a mind infinitely powerful, wise, and perfect, as the only possible explanation of the world. It sees in any other theory the implication that the marvellous adaptations and organisms we find in nature are the result of blind chance, an absurdity equal to saying that stone quarries of themselves change into cathedrals and iron mines into locomotives and steamships.

The atheist, on the other hand, refuses to find in the processes of nature anything analogous to the purposive activities of man. In the first place, man changes one form of force or matter into others. He does not create. In the second place, the so-called ends of nature that serve as the material for the theist's argument are overweighed by an indefinite mass of facts incapable of any such interpretation.

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[1] Cf. Chapter XLVIII.

Rain and calamity come to the just and the unjust. Misery and misfortune are the lot of all alike. Instead of the higher animal organisms being created after a plan, they are but the outcome of a ruthless struggle for existence, marked by the suffering and extinction of millions upon millions of the unfit. Further, the fittest that survive are not necessarily the morally or intellectually highest. From this standpoint they are often degenerate. Then, too, evolution is but one-half the story. Dissolution is the other half. Nature's processes go up and down, and there is no evidence that they do not go down just as far as they ever come up. The earth, its races, its nations, will all grow old and pass away into the chaos whence they arose, and what has been gained by their having existed? Can the theist point to any evidence justifying us in saying a purpose has thereby been fulfilled? He cannot. There is, then, in nature nothing whose *scientific* interpretation demands the supposition of an infinite intelligence.

All we have are the great processes of nature. All that we need presuppose to interpret these processes are substances with their laws of movement or of change. These all are ultimate, and are therefore to be assumed just as the theist assumes his God. In fact, if we grant that the fewer assumptions a theory makes the better, then our theory is preferable to theism because it does not assume as much. We simply assert that what is, has always been, and that what we now see to be nature and its processes, has always existed. These processes are ultimate, and though they may be described, they need no explanation. When we have described them, metaphysics has fulfilled its mission.

Atheism is generally materialistic, but is not necessarily either materialistic or atomistic. It could just as well be spiritualistic. The materialistic and more usual type explains everything as due to the movements of atoms, from the processes of inanimate nature to the formation of the highest organisms and the greatest productions of the human mind. All is the result of a purposeless collision and rebounding of an infinite number of atoms.

Materialistic Pluralism. Its History.

We turn now from our account of pluralism in its two rival forms, theism and atheism, to a brief statement of the various ontological forms that it has taken. Individual substances must be material, spiritual, or both. In the first case we refer to them as atoms; in the second case as spirits, sometimes as monads; in the third case as the atoms of the hylozoist.

Atomism[1] is one of the pluralistic theories that arose to remove the Eleatic and Heraclitic deadlock. Like the other pluralistic theories, it did this by accepting the unchangeableness of substance and by explaining change as an alteration in the relative positions of different substances. Ancient atomism is set forth preëminently in the teaching of Leucippus and Democritus, and in the "De Rerum Natura" of Lucretius. In the Renascence we have the revival of this ancient theory, to some extent, in the monadism of Giordano Bruno, but especially in the epicureanism of Gassendi. Descartes refused to accept the atomistic theory, and regarded matter as divisible *ad infinitum.* The great influence Cartesianism gained in Europe tended to postpone any further development of atomism till Leibniz and Newton won a hearing.

Leibniz spiritualizes the old atoms and describes them as unextended. Hence we shall place him among the spiritualists. We have, none the less, in his theory, the beginning of a new conception of the atom, combining somewhat the old hylozoism and the mechanical views of modern natural philosophy. The new conception regards the atom not as an inert mass, but as a non-extended centre of force. In short, as matter was endowed by the ancient materialist with life, so now the atom is endowed with motion, and the conceptions of matter and motion are combined in the concept of force. This theory was set forth in our own century by Faraday.

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[1] *Parallel Reading:* Paulsen, Introduction, pp. 145–158; Weber, History of Philosophy, pp. 55–58; Windelband, History of Philosophy, Section 10.

Spiritualistic Pluralism.

Spiritual pluralism is the theory of the great German philosopher Leibniz.[1] He was dissatisfied with the Cartesian conception of matter and substituted for it that of force, and then, too, he carried over the infinitesimal calculus of his mathematical studies to the explanation of nature.

Berkeley also set forth a spiritualistic pluralism, the world being composed of the Infinite Spirit, God, and the finite spirits, with their perceptions. The material world exists solely in the consciousness of God and the finite spirits.[2]

Dualistic Pluralism.

Dualistic pluralism, after what has thus far been said, need be only mentioned. Among the dualistic pluralists should be named Descartes, the Cartesians, and John Locke.

Singularism[3] or pantheism tends to break down all

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[1] For Leibniz' Monadology, cf. Weber, History of Philosophy, Section 56. For a fuller discussion of Leibniz' Monadology, cf. Zeller, Geschichte der deutschen Philosophie seit Leibniz, 2d ed., Munich, 1875; Erdmann, Versuch einer wissenschaftlichen Darstellung der neueren Philosophie, 6 vols., Riga and Leipzig, 1834-53; and especially the 3d volume in Kuno Fischer's Geschichte der neueren Philosophie, 4th ed., Heidelberg, 1902.

[2] Among recent writers we may refer especially to Wilhelm Wundt (1832-) as a Pluralist (Spiritualistic). For Wundt's views, cf. his System der Philosophie, 2d ed., Leipzig, 1897. For a brief résumé of Wundt's philosophy, cf. Überweg-Heinze, Grundriss der Geschichte der Philosophie, 8th ed., Teil 3, Bd. 2, S. 267-273.

[3] *Parallel Reading:* Paulsen, Introduction, pp. 232-243; Weber, History of Philosophy, pp. 325-334.

(b) Singularism. **It denies an absolute individuality to things.**

distinctions that would give any part of the universe individuality. All parts are but sides of one great all-inclusive whole. An individual object, person, or event is but a momentary state of the universe; and we may go even as far as to deny the existence of individuals altogether.

In one sense, all that regard the universe as a harmonious whole, as being obedient to some universal law or order, all these are singularists. Thus the distinction between the singularism, that does not deny the existence of the individual in some sense, and pluralism is not a sharp one, but the one theory merges gradually into the other. The only sharply opposing theories would be those that altogether deny the existence of the individual and those that deny all unity to the universe, or rather assert the existence of many absolutely non-related or independent worlds. This latter theory, however, seems too audacious to be held by any one.

Its extreme form.

The extreme form of singularism, as said, denies the existence of the individual altogether, and regards what we call the manifoldness of the world as illusion. It is perhaps best represented in Indian philosophy. Western thought has, however, had its extreme singularists, namely, the Eleatics. Being is for them absolutely one. The world of change or of individuality is illusion. But, strictly speaking, Heraclitus should be counted among these same singularists. A world in constant flux is a world just as little admitting the possibility of individuals as the world of the Eleatics. Where there is no permanency there is no thing distinct from other things; there is nothing but the whole. Where all is change there is but the change. This extreme form of singularism, however, is due to difficulties that belong to early and primitive thought, and that modern philosophy has practically discarded.

To pass on to forms of singularism that have seriously

Its explanation of the individual.

tried to solve the problem: What is the individual, and what is his relation to the whole? The question, we may say, has been answered in two ways. The older way is that of the Neo-Platonists, where the individual is regarded as an emanation from the fundamental source of the universe like the light sent out in all directions by the sun. As the light recedes farther and farther from its source, it approaches nearer and nearer to darkness, till finally it becomes infinitesimal, or altogether darkness. As these rays of light are emanations from the source of the light, the sun, so is the individual an emanation from the All in All, the Central Source of all things, or God.

The later forms of singularism explain the individual as a modification of God, the Ground of the Universe, or as a stage in his development.

The great singularistic systems in modern philosophy are those of Spinoza, Fichte, Schelling, Hegel, and Schopenhauer. For Spinoza the individual things making up the world and its order are modifications of the absolute. They follow necessarily from God's nature, or essence, just as it follows from the nature of a triangle that the sum of its angles is equal to two right angles. The question is how we are to regard the order of things relatively to the time of their appearance. That these so-called individuals come and go Spinoza does not deny. Yet their relation to the *ens absolute infinitum*, or God, seems not to be that of different stages of his evolution. The only solution of this question we get from Spinoza is that the world-process is not related to God temporally, but follows from his nature as an eternal verity irrespective of time. Spinoza seems, then, not to believe in the evolution of God.

Hence we may say that the doctrine of the evolution of the absolute with its corollary, the individual, is a stage in that development, is a third singularistic theory. It is the one which has been widely held in the nineteenth century and whose leading representatives are to be found among the Hegelians.

But let us turn now from our historical epitome to a critical discussion of the two chief theories of the world-order, —pluralism and singularism.

CHAPTER XXVII

PLURALISM

WE have already seen that popular opinion, and with it the more primitive views of the world, is pluralistic. Pluralism has thus always had natural thought and tradition on its side. Besides these, there have been two other forces of equal strength, — the moral and the religious. These latter are so powerful that any theory of the world that hopes to stand must be brought into harmony with them. Hence, the demands of the moral and the religious consciousness of man must be listened to and must be satisfied. However, there is more than one way of satisfying such demands. We may surrender our singularism and accept the pluralistic doctrine in full; or we may join hands with the singularist and agree to seek back of the points in controversy for some deeper truth that will enable us to become reconciled with pluralism by showing our theories to be not really, but only apparently, in conflict. Of the two, the latter has been the course in the controversy over cosmology, for both parties were too strong for either to give up the fight ignominiously and to confess that it was wholly in the wrong.

Cosmology dare not contradict the ethico-religious consciousness of man, but this does not prove pluralism.

Let us learn their controversy more in detail. If a man is a moral agent, he must be accountable for his acts; therefore his acts must be his, and not forced on him from without. He must be free and independent. His body, it is true, belongs to the world of physical things and obeys the laws of motion; but his soul is free.

It is true that at first sight morality demands the substantial independence of the

will; but this we cannot admit. However, a reconciliation may be still found.

It makes its own laws; that is, it decides for itself in at least partial independence of the forces acting from without.

Now there might be two kinds of forces acting from without. There might be, first, the agent or agents through whose activity the soul came into being. That is, the soul might be so formed that although it led a life of complete independence, this life might still be dictated by the agent that created it. It might be predestined to walk in the very paths its will afterward seemed to choose freely. Ordinarily this view has taken either the religious form, that God in creating the soul predestined it to a definite life, or a biological form, in the doctrine of mental and cerebral heredity.

Secondly, the forces determining the action of the soul may come directly from without. Such are the forces with which we are acquainted in psychology. The influence of environment upon the life of each human being, as well as the complete uniformity between cerebral activity and consciousness, give evidence that human conduct does not present an essentially different problem for our powers of prediction from those presented by any other events in nature.

Man's moral responsibility is no doubt a principle that will have to be maintained against all odds; but we have already shown reasons why it cannot be maintained by denying that an act of the mind is subject to the same laws of uniformity that work in nature and, admittedly, also in many of the mental processes, especially those of the intellect. Further, we believe that there is a valid argument against pluralism, to be brought forward later, which will force us to seek some deeper principle of reconciliation between singularism and the moral order than even cosmology can find. However, the theological cosmology dictated in part by the religious consciousness cannot be dismissed so abruptly.

Theism[1] maintains the existence of an infinite eternal Being outside of the world, to which the latter owes its being, its nature, and the laws of its governance. To avoid making the world only a manifestation of God, and thus making God the only true substance, theism is forced to give to the world a real existence outside of God.

Still theism (pluralism) deserves a hearing.

The popular form of this theory has been the following: Some time in the course of past ages, God, by a divine fiat, brought our cosmos into being. Its creation was out of nothing or, in the more primitive theory, was an ordering of a chaos or even a giving birth to the world. Then, too, God is represented as breaking into the order of nature from without and, either through miracles or in a less noticeable way, as providentially guiding the course of events. The relationship between God and the world is supposed to be close, and his direct interference with the world-process frequent.

Popular Theism.

Many forces have been at work to set aside this semi-mythological popular cosmology. As the conception of God has become less and less primitive, as God ceases to be a mere human being with tremendous intellect and power, and becomes idealized into the omniscient, omnipotent, eternal, infinite Being, he becomes farther and farther separated from the world-order and its individual events. There is no need, or at least less and less need, for the infinite divine foresight to interfere in the mechanism of its first creation. The very perfection of God's work drives us to conclude one of two things: either that God once and for all created and started the world on its career,[2] or else that every event, to the minutest vibration of an infinitesimal atom, is his direct creative act. Either God lives apart from the world, never interfering

The disintegration of this view of the world in modern thought.

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[1] As a theory of creation we are not here concerned with it, but must reserve that part of the discussion for cosmogony.

[2] The view of deism in the eighteenth century.

in its process, or else he is the direct cause of every change that takes place within it.

But other forces besides a growing idealization of God have been at work. The world to us moderns is no longer the spatially finite world of the Middle Ages. Its infinite expanse makes God an impossible co-dweller in space. Space no longer seems to us his proper dwelling-place, for to be in space would seem to us now to be part of the world. Then, too, as geology and astronomy have pushed back the origin of the earth and the solar system by enormous periods of time, we realize more vividly not only the age of our present solar and sidereal systems, but also the impossibility of placing a beginning for nature's process in time. Again, science has taken one after another of the supposed needs for divine interference into nature's course and thrown them aside. Man's creation, or that of any other species, is to-day essentially no more wonderful than any other occurrence. The Darwinian theory brought life and the origin of its forms under the same scientific categories as other facts of nature. The ultimate origin of life, though unknown even to-day, is still no longer a problem too great for science to wrestle with. In the same way, the nebular hypothesis of Kant and Laplace and Newton's law of gravitation have put the problem of the origin of our solar and sidereal systems with the same class.

Thus the advance of science, from the time of the new astronomy in the days of the Renascence down to that of the higher criticism of the Old and New Testaments to-day, has been rapidly transferring every seemingly anomalous phenomenon into the class of ordinary events.

Let no one draw the conclusion that this makes the world deserve less our reverence and our intellectual wonder. The miraculous and the semi-miraculous in the older conceptions seem to us to-day thrown out of court, not because they are of divine origin, but because they are anomalous. If you will, the universe as a whole and every event in it is miraculous; but anomalous events science will have none of. If you grant that there is a science of the physical phenomena in a game of billiards, you must grant science permission to explain every event in the whole range of eternity.

This disintegration of Theism leads either to Atheism or to Pantheism, and the real problem of Theism must be left unsolved.

Such changes in the thoughts of men have necessitated a far different theistic cosmology from that which was held of old. God's relationship to the individual event now becomes either indefinitely remote or indefinitely near. The one way leads toward an atheistic cosmology, the other toward a pantheistic. If we make God more and more remote, there is no stopping-place on this side of infinity where he will be remote enough. To make him infinitely remote is simply to make him absolutely extramundane; and that means to declare that the world is absolutely independent of him; and that, in turn, means to remove every rational demand for his existence; and this, finally, is to deny that existence. To put God's relation to the world before all time, is to put it at no time whatever.

On the other hand, if we bring God nearer and nearer to each individual event, how can we regard that event as anything but a manifestation of him? What part can any *tertium quid*, any second substance, play? If we draw God nearer, there is again no stopping-place on this side of the infinitesimal; and that means that we must identify God and the substance of each of the world's manifestations. A second substance other than God would be like the God infinitely removed from the world. Its part would be taken from it; the rational demand for its existence would be gone; and we should be forced to deny its existence and make God the one eternal, infinite substance beneath all the world's manifestations.

Thus, if we use the word "theism" in this sense, a theistic cosmology is no longer a serious contestant for recognition. However, the religious consciousness that has been its chief supporter cannot be ignored. The human reason has the demands of this consciousness to reckon with, and dares not forget them. But the trouble has been that the demands of the religious consciousness sought their satisfaction in the field of cosmology; whereas a deeper theory than cosmology must take them up and give us a view of the world wherein the ultimate demands of religion are both heard and respected, and the new cosmology is reconciled with the old religion. In setting aside the latter at this point, we do so only temporarily; but we do so with the distinct purpose of freeing cosmology from the religious problem.

But what problem is of right at the basis of cosmology? Without hesitation we can answer, The problem of change. Let us see what this answer means.

The real problem of Cosmology is *the Problem of Change.* Dialectic seems to force us to find in change a contradiction of being. Hence the possibility of change arises as a problem.

It seems quite commonplace to say, "Whatever is, is"; but when we ask ourselves what we mean by the word "is," we shall find that we have unconsciously come upon a very serious problem indeed. Thus, we might lengthen out our truism by adding, "A thing either is or is not; it cannot be both," and then proceed to ask, how about something that is changing its character? Is it not first one thing and then quite a different thing? "Yes," you reply, "quite true, it is first one thing and then it is the other thing; but, mark well, never both at once." But are you quite sure you have not admitted this very point that you deny? If something is white, it must be so for some length of time, no matter how short that time may be; a millionth of a second will do for our purpose as well as a thousand years. Afterward it is something else. How long a time intervenes between the instant when $X = a$ and when $X = b$? If you reply "some time," then X during that interval must have been either *a* or *b* or something else, *n*. By hypothesis it was not *a* or *b*; and you have forced us to ask whether there was any interval of time between *X* being *a* and *X* being *n*. If you say "yes," again, we are finally forced to have you tell what *X* was immediately after it was *a*. This you do. *X* in ceasing to be *a* becomes *m*. If now there was any interval between *a* and *m*, either *X* was, contrary to hypothesis, something else, *e.g.* *q*, or it was nothing at all. The latter conclusion would hardly be acceptable, so we seem forced to conclude that no interval of time intervenes between $X=a$ and $X=m$. But if this be so, if no time intervened, then the two instants must be identical. So you have been driven to say *X* is *a* and is not *a*, namely, *m*; in short, something is and is not all in the same instant.[1]

This is one of the chief problems of Greek Philosophy.

Thus it is that change seems to contradict being. This problem is an old one, and perhaps we had better discuss it in its ancient historical setting which we have already sketched. We saw that in the days of early Greek philosophy three distinct groups of thinkers took their turn at the problem. The first group found the difficulty we have just noted in assuming that anything that is, can possibly change; and they were bold enough to draw and maintain the conclusion that whatever is, does not change. Since whatever is, helps to make up reality, and what is not is nothing at all, and therefore falls outside of reality, they maintained that reality is eternally the same, and that change is a mere delusion. These philosophers were called Eleatics, and their chief representative was one Parmenides.[1]

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[1] The answer to this difficulty (as we shall see later) is: we never refer by the term "is" ultimately to the changing element, but only to the permanent or abiding element, amid the changing. If we call a horse white, we refer to some element in his existence that is not changing, though he himself may be undergoing many other changes, *e.g.* running, growing, eating, etc. Thus, whenever we interpret this changing element, we always have to analyze it into two elements, — a permanent and a changing. The permanent element we refer to as "being" (it consists really of a law of change); the other we can ultimately never interpret except to coördinate it with the permanent. This ultimately is the basis not only of atomism, but of all knowledge. Knowledge, as we shall see, always seeks for the permanent amid the changing. This, then, shows the fallacy of a skepticism founded on the argument given above. The world consists of two elements, — the permanent and the changing. Pluralism tries to explain the latter; but as we shall see, it is inexplicable, and therefore pluralism fails. Singularism accepts it as inexplicable except as it may be coördinated with the permanent; and this means we never interpret change as such but only its laws — they form the permanent, or Being.

By the Eleatics change is declared not to exist. Being is changeless.

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[1] His views on this problem are given in Weber's History of Philosophy as follows: —

"Starting out with the idea of being, he proves that that which is cannot have become what it is, nor can it cease to be, nor become something else; for if being has begun to exist, it has come either from being or non-being. Now, in the former case, it is its own product, it has created itself, which is equivalent to saying that it has not originated, — that it is eternal. The latter case supposes that something can come from nothing, which is absurd. For the same reasons, that which exists can neither change nor perish, for in death it would pass either into being or into non-being. If being is changed into being, then it does not change; and to assume that it becomes nothing is as impossible as to make it come from nothing. Consequently being is eternal. It is, moreover, immovable; for it could move only in space; now space is or is not; if space is, it is identical with being, and to say of being that it is moved in space is to say that being is moved in being, which means that it is at rest. If space is nothing, there cannot be any movement either, for movement is possible only in space. Hence, movement cannot be conceived in any way, and is but an appearance. Being is a continuous and indivisible whole. There is no void anywhere. There is no break between being and being; consequently these are no atoms. Let us suppose, for the sake of argument, that there existed a void, a break between the assumed parts of the universe. If this interval is something real, it is what being is, it *continues* being, instead of interrupting it; it unites the bodies instead of dividing them into parts. If the void does not exist, then it can no longer divide them. There is then no interval between being and being, and all beings constitute but one single being. Being (the universe) is absolute and self-sufficient; it has neither desires nor wants nor feelings of any kind. If it were relative, it could depend only on that which is or that which is not. If being depends on being, it depends upon itself or is independent; if it depends on that which does not exist, it is still independent, which excludes from it all desire, all need, all feeling. When

Opposed to this conclusion was one equally extreme, taught by Heraclitus of Ephesus. The fact of change is undeniable. If we must give up either being or change, it must be the former, not the latter. In short, change is everything.[1]

According to Heraclitus all is change.

The third group made a number of attempts to solve the dilemma reached by the foregoing doctrines. Its chief members were the atomists Leucippus and Democritus. This third group is made up of the first philosophic pluralists; and their attempt to solve our problem marks the origin of this cosmological theory. However, the atomic theory is only one of two great types of pluralism. The one denies all change within the atom, the other teaches that change does take place there. Let us consider first the former, or atomism.

The attempt of Pluralism to solve the deadlock.

Two types of Pluralism.

a. Atomism.

According to the atomists, both Parmenides and Heraclitus were right. As the former maintained, "Being" is unchangeable; yet at the same time change does take place. If the existent, or "Being," is permanent, then change cannot be a modification of "Being"; it must be

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one is everything, one has no desires. Finally, being is one; for a second being or a third being would be but a continuation of it, that is, itself. Hence, to sum up: Being can only be conceived as eternal, immutable, immovable, continuous, indivisible, infinite, unique. There is for the thinker but one single being, the All-One, in whom all individual differences are merged. The being that thinks and the being that is thought are the same thing."

[1] Heraclitus' position, in the words of Professor Weber, is the following:—

"Universal life is an endless alternation of creation and destruction — a game which Jupiter plays with himself. Rest, standstill, in a word, being, is an illusion of the senses. It is not possible to descend twice into the same stream; nay, it is not even possible to descend into it at once; we are and we are not in it; we make up our minds to plunge into the waves, and, behold! they are already far away from us. In the eternal whirl, the nothing constantly changes into being, and being is incessantly swallowed up in nothingness. Since non-being produces being, and *vice versa*, being and non-being, life and death, origin and decay, are the same. If they were not, they could not be transformed into each other."

explained otherwise. But what other explanation is possible? There is but one answer. "Being" must be made up of individual "Beings," and change must be an alteration of the relations between these individual "Beings," but not an alteration of the "Beings" themselves. In the teaching of Democritus "Being" is divided "into an infinite number of infinitely small molecules, which come together and separate. In that way bodies are formed and destroyed. These molecules are infinite in number and indivisible, without, however, being mathematical points, for an unextended thing would be nothing. They are identical in chemical quality, but differ in size and form. They are endowed with perpetual motion, which they do not receive from a transcendent principle, but which belongs to their essence." These atoms exist in empty space, and all change consists in an alteration of their relative positions, not in a change within the atoms themselves.

But Atomism fails quite to explain change.

Does his theory truly solve the problem of change? It certainly does not. True, change does not take place within the atoms; but none the less change takes place. Where? Within reality, if not within the atom. If this be not true, then change is denied entirely and we have the doctrine of Parmenides again. Forced, then, to admit that change takes place, the atomists are equally forced to attribute that change to the world. In short, the world in its totality contains change, therefore we have to explain it, and atomism has failed to do so. Atomism has simply pushed change out of one part of reality into another, namely, space; but space and the possibility of change within it are left unsolved mysteries. Thus pluralists of this type solve the problem of change only by pushing change itself into a corner, and by trying to cover it up; but all the time they are surreptitiously keeping the unsolved mystery conveniently at hand.

But there is another great type of pluralism. Let us see whether its attempt to explain change is any more successful. This second type is that developed in the celebrated "monadology" of Leibniz. It admits the existence of change within each ultimate entity, or monad. The monads are absolutely simple, indivisible entities that "may be compared to physical points or to mathematical points; but they differ from the former in that they have no extension, and from the latter in that they are objective realities" (really existing entities). Each one of these monads is a self-acting entity; in fact, all its activities, according to Leibniz, come from it alone. It is never acted upon from without. However this may be, the important point for us is that the monadology puts change within each entity, no matter how the change gets there. What is the consequence?

b. Monadology.

Surely this theory does not explain change through its pluralism; for it puts change within the individual entity, and change there demands as much explanation as anywhere else. Did we attempt, as followers of such a doctrine, to explain change, we should have to take each monad and analyze it (contrary to hypothesis) into simple entities, and so go back to the old atomism with its changeless entities. But this, as we have seen, would help us in no way whatever.

This, too, quite fails to explain change.

Thus neither form of pluralism helps in the slightest degree to explain change as such. Both forms assume its existence. The one assumes it within the world at large, the other within the atom, or monad; but neither in any way explains it. As an explanation of change pluralism is a failure.

But there is another question that pluralism must answer concerning change, besides that of its explanation. If the world is made up of a plurality of individual entities, how are we to explain the cosmos? The atoms seem to obey one another; one seems to act upon another and cause it to alter the direction of its motion.

A second problem of change that Pluralism tries to explain is the interaction, or

seeming interaction, between things.

In this way Democritus explains how change takes place in the large bodies that make up our sensible world. Did each atom lead a life absolutely by itself, if it moved and never affected in any way the motion of another atom, we should have not one great world, with its wonderful order and harmony, but as many worlds as there are atoms. But one fact that every sane mind is obliged to admit is at least the seeming interaction of different things. Sunshine makes the plant grow. The fire makes the ice melt. One billiard ball sets the other in motion. The spark explodes the gunpowder. Food makes us grow. Good blood improves our mental powers. Our second problem, then, is this: How do you account for this seeming change that one atom, or ultimate entity, is able to produce within another entity?

There are but two possible answers for pluralists to make, and in fact they have made both. They can admit that one ultimate entity does produce changes elsewhere in the world than in itself, or they can deny this.

1. Occasionalism and the preëstablished harmony. They both leave the problem unsolved.

Let us consider what follows when they deny it. You deny that one monad, or atom, acts in any way upon another. How then, we ask, do you account for the order and uniformity in the activities of different entities, and the general appearance of interaction? There are just two ways open to you. You can say that the seeming interaction, or uniformity, is due to mere chance. Good. Do so. What is the result? You have simply admitted that it is inexplicable, for that is all chance means. If it is a matter of chance, or inexplicable, then your theory is no better than any other theory as far as this problem is concerned. In short, it is a self-admission of failure, for it tells us that pluralism throws no light on our problem whatsoever.

But now suppose that you do not attribute the seeming order of the world to mere chance, but admit that it demands an explanation. You deny interaction, but you admit that there must be a principle somewhere to explain the uniformity. This principle cannot be the atoms, or monads, themselves. It is God. Then we are to understand that the uniformity, or order, of the cosmos is the work of God, and that therefore its principle does not lie in the world, but in an extra-mundane being. God may bring about this harmony, or world-order, by constant interference, namely, by the constant interposition of the creative act (occasionalism); or he may have so ordered each monad as he created it that it would act to all eternity in conformity with the acts of all other monads (the preëstablished harmony). But to take up the former theory, how does occasionalism explain interaction? Clearly, it assumes it. Between God and the world there is constant interaction, and this interaction is left quite unexplained. But again, does the preëstabished harmony explain interaction any more than does occasionalism? It does not. On the contrary, it merely puts the whole problem back at the time of creation, or in the creation; in short, solves one mystery by giving another unexplained mystery, or by a sort of metaphysical sleight of hand. You explain by throwing us suddenly into darkness and then turning on the light and telling us, "See, it is all done." That is no explanation. You take change out of the world, put it in God, then bring it back again. Why all this ceremony? How does God act on the world? That is the question, and you leave it unanswered; and it is the very same question, twist it as you will, How does one entity act upon another?

Thus, both attempts to deal with interaction as nonexistent are complete failures. They explain nothing, and therefore give us no justification for pluralism as an explanation of change.

Let us now return to the former pluralistic hypothesis which admits interaction. Let us see whether in it pluralism can in truth explain how one entity acts upon another. The noted German philosopher, Hermann Lotze,[1] deals this type of pluralism a fatal blow. Let us listen to the words of his Metaphysics.

ii. The Theory of Interaction.

Lotze shows that this theory likewise presupposes the very thing it claims to explain.

"The transfer of an *influence*, *E*, is the process by which according to the common view it is sought to explain the excitement of Things, previously unaffected by each other, to the exercise of their active force; and the process is generally conceived in a one-sided way as an emanation proceeding from an active Being only, and directed upon a passive Being. That this representation only serves to indicate the fact of which an explanation is sought, becomes at once apparent if we attempt to define the proper meaning and nature of that to which, under the figurative name of influence, we ascribe that transition from the one Being to the other. Only one supposition would make the matter perfectly clear; the supposition, namely, that this *E* which makes the transition is a Thing, capable of independent reality, which detaches itself from its former connection with *A*, and enters into a similar or different connection with something else, *B*. But precisely in this case, unless something further supervened, there would be no implication of that action of one thing on another, which it is sought to render intelligible. If a moist body, *A*, becoming dry itself, makes a dry body, *B*, moist, it is the palpable water, *E*, which here effects this transition. If, however, what we understood by moisture was merely the presence of this water, at the end of the transition neither *A* nor *B* would have undergone a change of its own nature, such a change as it was our object to bring under the conception of an effect attained by an active cause. The transition itself is all that has taken place.

"True, the withdrawal of the water alters the drying body; its accession alters the body that becomes moist.

The connection between the minutest particles changes as the liquid forces its way among them. As they are forced asunder, they form a larger volume and the connection between them becomes tougher, while the drying body becomes more brittle as it shrinks in extent. These are effects of the kind which we wish to understand, but the supposed transition of the water does not suffice for their explanation. After the water has reached its new position in the second body, *B*, the question arises completely anew what the influence is which, so placed, it is able to exercise — an influence such that the constituents of *B* are compelled to alter their relative positions. In like manner the question would arise how the removal of the water from *A* could become for this body a reason for the reversal of its properties. This illustration will be found universally applicable. Wherever an element, *E*, capable of independent motion, passes from *A* to *B*, — thus in all cases where we observe what can properly be called a *causa transiens*, — there universally this transition is only preliminary to the action of one body on another. This action follows the transition, beginning in a manner wholly unexplained only when the transition is completed. Nor would it be of the slightest help if, following a common tendency of the imagination, we tried to sublimate the transeunt element into something more subtle than a 'thing.' Whatever spiritual entity we might suppose to radiate from *A* to *B*, at the end of its journey it would indeed be in *B*; but the question how, being there, it might begin to exert its action upon constituents different from it, would recur wholly unanswered.

"This difficulty suggests the next transformation of the common view. Instead of the causative thing (Ursache), we suppose a force, an action, or a state, *E*, to pass from *A* to *B*. We may suppose these various expressions, which are to some extent ambiguous, to have so far a clear notion attached to them, that they denote something else than a thing. They thus avoid the question how the thing acts on other things after its transition has been effected. But in that case they are liable to the objection, familiar to the old metaphysic, *attributa non separantur a substantiis.* No state, *E*, can so far detach itself from the thing, *A*, of which it was a state, as to subsist even for an infinitesimal moment between *A* and *B*, as a state of neither, and then to unite itself with *B* in order to become its state.

"The same remark would apply if that which passed from *A* to *B* were supposed, by a change of expression, to be an action, and thus not a state, but an event. No event could detach itself from the *A*, in change of which it consists, and leave this *A* unchanged behind it in order to make its way independently to *B*. According to this conception of it, so far as it is a possible conception at all, the action thus supposed to transfer itself would simply be the whole process of efficient causation which it is the problem to explain, not a condition, in itself intelligible, which would account for the result being brought about.

"And after all these inadmissible representations would not even bring the advantage they were meant to bring. As in regard to the transition of independent causative things, so in regard to the transition of the state, or event, *E*, from *A* to *B*, the old question would recur. Granting that *E* could separate itself from *A*, what gave it its direction at the particular moment to *B*, rather than to *C*? If we assume that *A* has given it this direction, we presuppose the same process of causative action as taking place between *A* and *E*, for which we have not yet found an intelligible account as taking place between *A* and *B*. Nor is this all. Since it will not be merely on *B* and *C*, but presumably on many other beings that *A* will put forth its activity, we shall have to ask the further question, what it is that at a given moment determines *A* to impart to *E* the direction toward *B* and not toward *C*, or toward *C* and not toward *B*. An answer to this question could only be found in the assumption that already at this moment *A* is subject to some action of *B*, and not at the same time to any action of *C*, and that there thus arises in it the counteraction, in the exercise of which it now enjoins upon *E* the transition to *B* and not to *C*. Thus for the second time we should have to presuppose an action which we do not understand before we could present to ourselves so much as the possibility of that condition which is no more than the preliminary to a determinate action.

"Finally, it is important to realize how completely impossible is the innocent assumption that the transferred *E* will all of a sudden become a state of *B*, when once it has completed its journey to *B*. Had this homeless state once arrived at the metaphysical place which *B* occupies, it would indeed be there, but what would follow from that? Not even that it would remain there. It might continue its mysterious journey to infinity and, as it was once a no-man's state, so remain. For the mere purpose of checking it in its course we must make the yet further supposition of an arresting action of *B* upon it. And given this singular notion, it would still be a long way to the consequence that *E*, being an independent state, not belonging to anything in particular, should not only somehow attach itself to the equally independent being, *B*, but should become a state of this *B* itself, an affection or change of *B*. These accumulated difficulties make it clear that the coming to pass of a causative action can never be explained by the transfer of any influence, but that what we call such a transfer is nothing but a designation of that which has taken place in the still unexplained process of causation, or which may be regarded as its result."[1]

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[1] Lotze, Metaphysics (English translation), Vol. I, p. 134 ff.

Thus Pluralism fails quite to explain change.

Thus the pluralism which admits interaction as well as that which denies it, fails to explain change. From beginning to end it assumes the very principles that it tries to explain.

Must we then return to either Parmenides or Heraclitus? No, for change is a fact, and yet all is not change.

What are we then to conclude? Are we to return to one of the extreme theories, either that of Parmenides,[1] or that of Heraclitus, both of which pluralism sets itself to overcome? Surely not. Against Parmenides we must maintain that even if change were a delusion and not a reality, we in no way escape from the difficulty. A delusion at the least is a fact, and therefore demands explanation; and Parmenides does not explain it.

But does Heraclitus help us out of the difficulty? No better than did Parmenides; for what would be the consequence if we admitted that the world contains no permanent element, but is a world of absolute becoming? First, we could not offer such a theory as an explanation, for on the extreme Heraclitic hypothesis all explanation of anything whatsoever becomes impossible. To explain we have to appeal to principles that always work or are valid; but in a world of absolute becoming our very principles would keep changing. Our explanation would have to be different every moment of time, for the next it would have ceased to be valid. It would thus be a world that admitted of explanation as little as did that of Parmenides. Surely, then, we dare not offer "absolute becoming" as an explanation without contradicting ourselves, for implicitly it denies the possibility of explanation. Whether such a world could exist, whether we might not be forced to give up the attempt at explanation altogether, is a question we must consider later in the theory of knowledge.

Then, secondly, if the extreme Heraclitic theory were right, there would be nothing to hold the world of one moment to the world of the next. Did everything change, if nothing were common to two successive moments, we should have not the same world undergoing changes, but two quite distinct worlds from moment to moment. In short, an extreme form of the Heraclitic doctrine would annihilate the world by a principle that makes it an infinite number of worlds, each lasting only for the infinitesimal instant of time called the present. Clearly this is but another way to deny the cosmical character of the world and to maintain that it is really nothing but chaos. Just as you were in any given world, you would find that world the sum total of reality; for the other worlds would in no way reveal their past or future existence. This theory claims to tell us about a world with which we are acquainted; namely, about a world in which we live and move and have our being, a world we can know — our own world. Now any such world as it describes could not be known. We could not be acquainted with it; and therefore, if it does exist, it cannot be the world that we are trying to interpret.

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[1] This means, of course, the extreme form to which their theories can easily be supposed to be brought, that is, the absolute denial of all change and the claim that absolutely all is change.

Further, Heraclitus' view gives us not one world but an indefinite number of worlds.

Let us now see where our argument stands. The world is not one of absolute change; it is not one absolutely without change. We must admit the existence of both elements, — the permanent, or substance, and change, or the states of that substance. We tried to see whether pluralism, or the doctrine of many substances, would help us to explain that world of change; but we found that pluralism in no way makes clear the mystery it attempts to solve. On the contrary, it makes darkness infinitely darker by giving us in each of the substances anew the same problem of change that we had to solve concerning the world as a whole. Each substance of pluralism is simply one more world added to the list. Each one demands for itself the same explanation that we seek

Conclusion.

for the world as a whole. Pluralism, therefore, only magnifies the difficulty, but in no way explains it.

Yet even this is not the worst that may be said against pluralism. Each substance of pluralism, if the pluralist be consistent, is really a little world all by itself. For any one of them to come into relation with any other is to lose its own substantial character, is to submit to some higher power that really forms the true substance. In short, the pluralist was forced to find in God the only true substance, or else to deny all interaction among substances, and to affirm an indefinite number of worlds. The absurdity of the latter conclusion we have already seen. The conclusion of the former is evident. It finds in God the only true substance. It denies pluralism and admits singularism.

CHAPTER XXVIII

SINGULARISM

Singularism denies a plurality of absolute things, and regards change as ultimate and so necessarily inexplicable.

SINGULARISM, as we have seen, denies that the world is a plurality of substances. But how can we look upon it as a unity? That depends upon what you mean by the term. Ordinarily you and I mean by a unity something that is definitely separated from other things and that stands out as an indivisible whole: but of course in this sense we do not know the world as a unity; for, as we have seen, we cannot place bounds to the world. Thus it is not a unity in the same sense that an apple or a house or a man is a unity; but the expression "unity of the world," like the expression "infinity," is negative. To assert the unity of the world is to deny its divisibility, just as to assert its infinity is to deny its limitation.

But again you ask, Does singularism explain change? Pluralism did not; now does singularism? We admit frankly, it does not. The rejection of pluralism was because of its *pretension* to explain change, and secondly because the division of the world into substances was a division into worlds, a manifest absurdity. Singularism does not explain change; rather it finds in change something just as ultimate and inexplicable as the very existence of a world, or reality itself. Change is part of the very nature of reality; change is an ultimate fact beyond which we cannot go, and what is more, beyond which there is no rational or sane need to go. We are not called upon to explain the ultimate. If we were, its explanation would bring us to a further ultimate behind it. This, in turn, would need explanation! and so we might proceed forever. The ultimate then as such calls for no explanation ; and therefore all that any scientific theory is called upon to do is to show that a given element is ultimate, and this part of its work is done. In short, we cannot explain change, as pluralism tried to do, by *deducing* it from the structure of the universe ; but we can accept change as a fundamental constituent of reality and try to explain it in the limited sense of learning its order, or the principles that govern it.

But the denial of Pluralism does not rob it of all meaning and worth.

But in accepting singularism are we to cast aside pluralism as meaningless and worthless? By no means, for pluralism contains much that is true. When amended, its method of explaining change by searching for changeless entities is ultimately the only one by which we can deal with and interpret the changing world about us. You and I have before us, then, the task of reëstablishing a modified pluralism, not the pluralism that would explain change absolutely, but a pluralism that seeks to formulate the laws of change (popularly called the laws of nature) between entities that are relatively changeless.

In one sense change demands explanation, *i.e.* we must seek its laws of uniformity.

Such laws presuppose constants.

If, shipwrecked, we were drifting on a raft in mid-ocean, how should we be able to say, first, that we were drifting, and next, to tell in which direction? The answer is evident. We should have to seek for something that did not move, or whose movements were definitely known, and then determine our position relatively to that object; perhaps to watch the sun, the moon, and the stars, and our position in reference to them. Or if we stood on the bank of a river desiring to know whether the tide were turning or had turned, we should perhaps throw sticks into the water and watch which way they went *along the shore.* In short, the only way in which we can determine motion, its existence, its direction, its speed, is ultimately to compare it with some standard; and this standard must be motionless in reference to the object compared. Did the shore move, we should have to determine its motion before using it as a standard to determine the direction of the tide. We should have to go back to some object that in reference to the river did not move. Thus in navigation when we use the sun to determine our position in mid-ocean, the moving sun would be useless as a standard did we not know the exact character of its motion and its altitude for that time of year. Every one acquainted with any form of exact measurement knows well how many conditions, such as temperature and, as in astronomy, the weight of the atmosphere, have to be taken into account.

Again, if we have some colored cloth, and wish to determine whether or not it has faded and to what extent, we seek as a standard of comparison some cloth that has not faded. It may be we can trust to our memory in this particular case, or it may be that part of the cloth has not faded much; but still the more accurate way would be to compare it with a piece of the same stuff that had been so carefully preserved from all conditions which could alter its color that we might trust it to have remained the same.

So of our mental states. Have we as bad a headache to-day as we had a fortnight ago? Perhaps our memory is accurate enough to give us a trustworthy mental image of what we previously suffered. If not, we seek for some more trustworthy standard. Thus, last time I could not work, whereas to-day I can. Last time I described my pain in terms that indicated greater suffering than I now have, or last time my family saw visible signs in my face of pain and ill health, whereas to-day these symptoms are not evident. This shows how necessary it is to seek for some permanent basis or standard that will not vary, or whose variations are known.

Now when we deal with the world at large, and try to measure or explain all its manifold changes taken together, we have to seek again for something permanent. This we must have at the bottom of our system as a whole. That is, the only way in which we can tell even that there has been a change, or tell what the change has been, how great and how rapid, will always be to seek for the permanent as a standard. Thus we are obliged to follow the lines of pluralism and treat change as an alteration not of a constant, but of relations between constants.[1]

These constants, though not absolute or substantial things, are still relatively independent entities.

We may then state our doctrine as follows: In a world always undergoing changes, the only way in which we can keep informed of their extent and character is to analyze the manifold processes we meet with and pick out the constants. These assumed constants to be of value must directly or indirectly go back to basal constants that are accepted for the time being, at least, as absolutely constant. All change must be interpreted in terms of these constants, and inasmuch as the constants themselves by hypothesis do not undergo change, the change must be without the constants, namely, in the relations obtaining among them. Now this is exactly the doctrine of pluralism, with only this alteration: pluralism maintains that these constants are absolute, that they are true substantial entities; whereas their true nature is but relative, that is, relative to the changes they are called upon to measure. They themselves may at any time be subject to further analysis, and a more fundamental system of constants be demanded.

But what is the character of these constants? In their totality they will be of every sort and kind. Every possible standard of comparison can be included. The most familiar constants known to science are of course the atoms of the different chemical elements; but these are by no means the only ones. Even could we work back to some ultimate kind of atoms to which we could reduce every form of material existence now in any way directly or indirectly known to us, even these would not be the only constants; because though atomism gives us a basis for the quantitative explanation of changes, it does not give a basis for purely qualitative comparisons. As we saw, science in its interpretation of the world cannot neglect the secondary qualities of things; for they must have their explanation and interpretation as well as the primary qualities or purely quantitative relations. Ultimately, then, pluralism must include not only an atomism of quantity, but also one of quality.

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[1] All this is very briefly stated, but to discuss the question at greater length would be only to repeat many of the chapters of the Philosophy of Nature and of Mind, especially Chapters IV, VI, VIII, XVII, and XX.

A similar truth holds of the mind as well as of nature. The ideal of mental analysis will always be to find atomic or simple mental states out of which the real or complex mental states of our consciousness are built up. How else can mental states be compared? Even the most general and vague comparisons involve some of this analysis or dissecting of the real living wholes of the mental stream.

Thus the atomism of science is only a relative, not an absolute, atomism.

Thus we can well understand how science everywhere proceeds by a process quite analogous to that of the old atomism. It is the only way in which change can be interpreted. But in admitting this, let us not forget the purely relative character of the atoms. They are permanent or constant only from the point of view of the less permanent. Absolutely, we have no means whatever to judge of any atom, for to-morrow's discovery may force us to dissect it into thousands of others. Likewise, the independence or individuality of any atom is but relative. Of course it is less liable to suffer modification than the concrete objects of experience; were it not, it would be useless for our work of comparison, but this does not make it a really absolute atom. An atom of hydrogen you and I cannot analyze; dare we therefore maintain that it is truly substantial, that it is an ultimate entity, and that all change must lie without it? We already know from science, through experimental evidence, how untrue this is. In short, when we say of our ultimate atom, no matter what it be, that it lives a life of independence, we mean merely that science may for the problem in hand ignore its lack of independence.

Now these truths show clearly how different the interest of science in interpreting and explaining changes is from the old cosmological interest of pluralism. Science here accepts changes as facts. It interprets those changes in terms of constants modifying their relations. This gives us the laws of change, or the laws of nature. It does not attempt to show how change arises out of elements that do not contain change; for no matter how far science carries us in her analysis, we have always before us a world of change. The cosmological pluralist, however, tried to show us an absolute basis for change in substances that were changeless. The moment we ask the scientist how his atoms act, react, interact, he can reply: "I do not care, for the question lies beyond my problem. I am concerned with finding what the laws of action and reaction are, in short, in what constant ways these atoms do interact." The cosmological pluralist, however, does not make any such confession. When we asked him, he was forced to explain or else give up his theory; but explain he could not.

We are now able to give an answer to the question, What are these things into which we are always dividing any given portion of reality? What do we mean by their existence? How can the world be ultimately a unity and yet seem to us made up of many separate independent things? Surely as we look about a room, the chairs, the books, the pictures, the people, are each and all individual things, each living a life or existence by itself, each having a history all its own.

The better we know

This is all very true and is in no way in conflict with the unity of the cosmos. The thingness of ordinary

things the more intimately related do they become, the more clearly are they but elements or members in one all-including system.

objects means their relative, not their absolute, independence and self-existence. Were they absolutely independent, they would surely be indestructible. Their very history shows them to be only relatively substantial. They come and go like the waves of the sea. Their unity, their individuality, is of a kind to make them totally different from the substantial entities of the pluralist. That the one world should be many worlds, was, we found, a complete contradiction; but that the one world should be many things is no contradiction. We mean by these things to express the differences we discover in the world's manifestations. On the basis of these differences we have dissected the world; but this dissection is solely for our convenience. As we look at the human body we learn to distinguish the arms, the hands, the legs, the head, the mouth. But we do not mean that a mouth could exist without a head. Yet we are in constant danger of looking upon part of the world's story as the whole truth. We, bound in by all sorts of limitations, tend to exalt the part or the individual thing, and regard it as something quite independent of all else. We forget that if we truly and fully described it as it is at any instant, we should have to show its dependence in thousands and thousands of ways upon other elements of reality. In truth, as we shall see later, to know one thing fully would be to know everything. But this does not deny the reality of the individual thing. It simply shows that the "thing" is but a means of gaining a partial explanation and knowledge of the world. Did we know the world fully and completely, we should do without the division of it into things and their qualities. The truths these divisions indicate would, of course, be included in the full, complete story of the world; but the temporary makeshift, the thing and its qualities, might then be set aside for a more adequate method of description. Thus we find that as we learn our world better and better, the individual thing loses more and more its independence and is found to be less and less separable from the rest of reality. To know anything better means to know more and more about its dependence upon the world about it. As we know life better, we know more and more of the relations between it and its environment; we explain it and its origin more and more in terms of the forces acting from without. If we kept on long enough, we should bring in so much of reality that in the individual thing we should see, as Leibniz said of his monads, a complete reflection of the universe. We are then to look upon the world in its totality as a unity; it is one substance manifesting itself in the infinite richness and variety of all things and their qualities. They all belong to it and are of its very life and being.

But what is this system or substance back of all things? It is the universal system of law obtaining the world over.

But how are we to picture this universal substance as distinct from its manifestations? This question we brought up before, but we could not answer it completely until we had decided how many substances there are in the world. What do we mean by the absolute permanence back of all change? What is substance? If we have to exclude the changing, or that which comes and goes, what is there left? Clearly the permanent laws or uniformities in accordance with which the changes take place, or, as they are technically expressed, the uniformities of coexistence and sequence among the changing elements. They are the laws of the world's manifestations. These laws tell us that under given conditions such and such a consequence will be the result; that if we heat iron, it will expand; if we fall into the water, we shall get wet. These laws are the permanent or substantial element in a world of unceasing change,[1] and they form a complete unitary system. By these laws everything is united in closest bond with everything else. It would seem that a change in one part of the universe involves in it a change throughout. No part lives unto itself, but all are members one of another. The complete causal *nexus* that binds together every part and element of the universe, this is its substance. No element lies outside of this uniting bond; and these laws of causation, as we shall see, form one all-including system. To this principle of causation we must then give our next reflective study.

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[1] In a recent issue of Science complaint was made against the custom of regarding natural laws as a sort of actually existing things. All this is right enough; but it is wrong to go to the other extreme and regard them as merely intellectual conveniences. They describe facts, or elements

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found by analyzing facts. Either they hold of reality or they are false and worthless. In short, they do describe one element of reality, *i.e.* its permanent element. True, they are abstractions and not the concrete reality; but so are all the constructions of science.

CHAPTER XXIX

THE PRINCIPLE OF CAUSATION[1]

No object is merely passive when acted upon; and analysis of any given case of causation will reveal an indefinite complexity in the elements taking part.

We have seen that the uniting principle of the world is the system of law that binds and unites every element with every other. This uniting principle we know as the law of universal causation.

With the warm days of spring great transformations take place in nature with a rapidity that seems borrowed from the magic of fairyland. The grass grows green, the wild flower lifts its head from every little nook. The birds return with song and nest-building, the fruit trees blossom. Nature everywhere enters upon a new life. Whence has all this come? Our first thought is that it is all due to the increased warmth of the sunshine.

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[1] *Parallel Reading.*

The Principles of Empirical or Inductive Logic, by John Venn, London and New York, 1889, Chapters II and III.

Historical Note.

For the History of the Problem of Causation, cf. König, Die Entwickelung des Causalproblems von Cartesius bis Kant, Leipzig, 1888; and also by the same writer, Die Entwickelung des Causalproblems in der Philosophie seit Kant, two pts., Leipzig, 1889–90.

✓ The important thing to notice in the history of the problem of cause is the revolution brought about by Hume. The older view of cause and effect (Scholastic and held to till Hume, although Leibniz had shown signs of the coming change of view) was that the effect can be logically deduced from the cause. The relation between cause and effect is thus a logical one. Hume annihilates this doctrine once and for all time. The effect is in no way like its cause. Their relation is solely one of necessary sequence, but this in no way involves similarity. To some extent we have returned to the older view, through the doctrine of the conservation of energy. The cause and effect are quantitatively alike; but still qualitatively no such similarity follows.

But why to the sunshine all the praise? Yonder rock is stiff and hard as it was amid the winter snow. Has the heat made it live? No. Then heat alone is not the only cause of spring. The sunshine only awakened a sleeping world, and in the forces that it has released, we must seek for part of the explanation of the new life. As we turn our eyes to the individual plant or tree, we see even more clearly how great is its own part in the change.

As the apple tree unfolds its buds, we do not expect to see roses. For them we look to the rose-bush. But why? The same warmth governs both the tree and the bush. Clearly the warmth played but a small part, even though a necessary part; for the tree must have determined that the flower should be an apple blossom, and the bush that it should be a rose. But it is not merely a rose; it is pink, whereas others near by are red, and others still are white. To explain this, we must search for other elements in the nature of our bush.

Thus, look where we will in the whole realm of nature, we can never say that this one thing is the cause of that one result. The longer we search the more causes we shall always find to help account for the total complex effect. Indeed, in the last analysis, an absolutely complete explanation of any single event in all its concrete detail would involve every element in the whole universe. Then, too, just as we should find any individual thing indefinitely rich in elements, if we were able to analyze it exhaustively, so also should we have to seek this same indefinite complexity in its causes.

Finite knowledge not being able to deal or not needing to deal with such an indefinite

But no one is able to hold himself down to analyze any part of nature exhaustively. What is the consequence? We find, in dealing with causation, that we use the same abstractions that we do elsewhere in our interpretation of nature. No rose is known by us in all its infinite complexity of shape and shading, to say nothing of its cellular complexity ignores it and thus passes from the concrete to the abstract cause and effect.

and molecular structure. We neglect the absolutely concrete, or the totality of the rose, and are satisfied to have a more or less general knowledge of it. So, too, in any given instance of causation, we do not, and cannot, consider the thousands and thousands of separate elements that make up the concrete total. The purposes of man are best fulfilled by our indefinite generalities. It is only here and there that we attach importance to a more accurate knowledge; but even in such cases we only add on a few more differentiating elements, and let the thousands of others pass by ignored.

The resulting generalities are of far greater value to us; in fact, are necessary to make knowledge useful.

There is reason for this; for if we treated every individual cause and effect in the totality of its complex detail, what would be the result? We never see two fires that are exactly alike; and if instead of knowing in a general way that fire burns, we should only know that this particular highly differentiated form of fire burns in this particular highly differentiated way; we should never protect ourselves against fire, but only against a particular form of fire that was never again to occur. Our information would be clearly useless. The absolutely concrete individual case gives us no knowledge that is of any value, unless somehow it enables us to deal thereafter more fittingly with other cases that are somewhat different from it.

But a world of which generalities hold must be a world in which most elements are subject to frequent repetition.

But let us see what a tremendous inference is involved here concerning the world as a whole. If everything that happened never repeated itself in any similar way again; if we lived in a world whose changes from moment to moment were so vastly great that even our highest generalizations would become useless because no more events happened to which they applied; then, indeed, we should be just as badly off as though we never collected general information and lived a life devoted only to the individual in all its concrete complexity. Thus the principle of causation that we actually use, assumes not only that definite laws exist, but also that substantially similar situations are frequently repeated. We may call this latter assumption, if we please, the law of repetition.

But this in turn dare not mean that a complete repetition ever takes place:

At this point still another problem arises. The world is uniform in its occurrences, that means it is not from moment to moment absolutely different. Have we any reason to believe that the world never repeats itself, that there is no moment in its history in which it is absolutely the same as at any other moment?

neither the world-wide over,

Of course, we have, to begin with, the tremendous improbability of any such state of affairs. As a matter of probability, there would be only one chance out of an infinite number for the changing world in all its infinite complexity to repeat itself. But still the world lasts a long time, and why may we not suppose that after enormous lapses of time it starts over again on the old career? Of course, if it does this once it will do it repeatedly; for by the law of causation the same conditions give the same results. Hence, if one such state leads to its own repetition after a given period, it will always continue to do so. Why, then, may not the course of the world be cyclical? Have we any rational right to say that it is not? *We have, for such a supposition is absurd.* How so? Let us call any two such similar periods of the world's history, *A* and *B*. Now, by hypothesis, *A* and *B* are absolutely alike except in the time of their occurrence. But how, we ask at once, are we to distinguish the two periods from each other, or from any other of the infinite number of similar periods. *B* has no characteristic, not even its place in the series, by which it can be distinguished from the others. But you say, in absolute time they are different. Yes, but we have shown that time relations are relative, never absolute. Therefore, by the very hypothesis, *A* and *B* are absolutely alike in every respect. *A* and *B* are therefore one and the same, which contradicts the hypothesis.

Moreover, would it not be possible to bring up the following argument?[1] Any such supposition would give us not two similar periods of the world's course, but two distinct worlds. We, in one period, would be absolutely cut off from the others, for how could we know them to exist? Did we know them to exist, our knowledge itself would by hypothesis be merely a repetition of the same knowledge possessed by a man just like us in the previous period. Hence, though the world itself kept moving forward, a knowledge of it could in no way progress. But this is nonsense. In short, parts of the future and of the past would be cut off from our knowledge in the same way that they would be if they were totally and absolutely distinct worlds. We have here two problems that deserve further thought before they are finally answered. Might two worlds exist, or can there be but the one world? Can we assume the existence of a world that as such is absolutely unknowable? These problems we must leave till later on. But so much at least we can say now, any evidence of such a cyclical world course would be an impossibility. Did it occur, we should remain absolutely ignorant of it. It would be something of which we could take no account whatsoever.

nor in any part of it; for it will be found that the whole causal system is itself involved in any given case of causation, no matter how limited its area may be.

But, we may be asked, may not some individual things or events repeat themselves, even though the whole course of the world cannot? To this question likewise we have to answer, no; but before giving our reason for this reply, we must consider one other truth concerning causation.

This truth is the following: We may assume that the objects within some given area of the world are not affected for the time being by objects without that area. Thus we might assume that our solar system is leading a life independent of the other heavenly bodies. But if we did make such an assumption, we should still have to maintain that farther back in the history of the system its independent life came to an end, and so that the objects outside once upon a time exerted an influence within our hypothetical area. If this were not true, in other words, if any part of the world could lead a life of complete independence of all other parts, then pluralism would be true. But when we rejected pluralism, we rejected by implication the possibility of any such independent entity or system of entities.

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[1] From the point of view of the epistemology taught in this book, such an argument would certainly hold.

But there is a further implication. As we go back farther and farther in the history of our hypothetical system, not only should we come upon the influence of outside systems, but we should also have to assume that what was true of our original system is true of these other systems too. In short, as we go back in the history of any man, and find a greater and greater number of progenitors in each preceding generation, so likewise in the history of any system do we find an increasing number of other systems influencing it directly or indirectly, as we go farther and farther into the past.

Surely, the farther backward or forward we travelled, the greater the portion of the universe we should find involved in our causal series. Of course such a regression would bring us to infinity if we could only keep on for an infinite time. However, as we cannot do this, we have no right to conclude that the infinite world is sooner or later involved in any given example of causation. Still, this thought does make us turn back to the theory of singularism, and inquire whether or not, just as we found it false to treat any part of the world as an independent entity by itself, in short, to divide the world's substance, whether or not in the same way it is not false to look upon any causal series ultimately as disconnected from the remainder of the universe. Are we not to conclude that the world of causation is a unity, and that no part of it can be separated absolutely from the rest; but that absolutely every event in the world is interlocked causally with every other?

Clearly, we must hold this doctrine or else give up our singularism; for as we have seen, if we grant, no matter how short the period, an absolute independence to any part of the world, we can never regain its dependence? It is just as much a contradiction of singularism to have a thing independent of the whole for a millionth of a second as it would be to have it so for eternity. It would have become a world by itself, and all the power of the remainder of reality could not subdue it again to a state of dependence.

Still all this is a statement of a dogma rather than a proof of its truth. But really we have already given the proof. We have seen that it is absurd to believe in any complete repetition in the course of the world's process, because such a repetition would split the universe up into systems from within which the remainder of the universe would be unknowable. Likewise, did we suppose any limited causal system to be independent of the remainder of the world, it could be fully explained by itself, that is, even though we ignored the rest of reality. Did we live in such a part of the universe we should be causally cut off from the remainder, and that remainder would then be unknowable. We could not perceive it, for it could not stimulate our organs of sense; nor could we detect it by any indirect means, that is, by any effect it produced in the things which we do perceive. In short, we should be again splitting the universe up into independent worlds, but the theory of knowledge will show us that this is not permissible. Hence we must conclude that no part of the universe can be treated as a causal system absolutely by itself.

In short, there is never in the concrete reality a complete repetition.

Now what bearing has this truth upon the question whether or not any part of the world's course can repeat itself absolutely? Clearly, if all the world as a causal system is involved in any part of that system, an absolute likeness in one part presupposes a universal likeness. For should there be anywhere a difference in the universal causal system, that difference would, according to our premises, involve a difference in the part in question, since that difference must make itself felt throughout reality. Hence, *vice versa*, an absolute likeness or a lack of difference in any part must involve a likeness throughout reality. But such a periodic return to an absolutely similar universal state we have already disproved; therefore we must now conclude that what is true in this respect of the whole of reality is likewise true of each part.

A further problem: does not only every cause have its one definite effect, but also every effect its one definite cause, i.e. does the causal law read backward as well as forward? Our formal logic seems to say no;

There remains one further problem related to the general problem of causation. We may state it briefly as follows. The usual statement of the principle of causation is: Under the same conditions the same thing always happens, or, given the cause, the effect will follow. Our new problem asks whether or not we can reverse the order in this proposition, in short, whether or not we may say, *given the effect, we can determine what was the cause, or everything happens always under the same conditions? Has every effect the same cause?*

Ordinarily this question has been answered in the negative, and we all remember how we were taught in our formal logic that it was a fallacy in hypothetical reasoning to affirm the consequent and thereby prove the antecedent. Thus let it be granted that if *a* is *b*, then *c* is *d*. In short, if the condition of *c* being *d* is that *a* be *b*; then if we grant that *a* is *b*, we must admit also that *c* is *d*. On the other hand, it does not follow that when we find the consequent or the effect, *c* is *d*, that this particular condition, *a* is *b*, is true; for perhaps there are other conditions when *c* will be *d*. If we put ice next to a hot fire, it will melt; but ice melts also when we put it in the warm sunshine. Hence if we learn that the ice has melted, we have no right to conclude whether or not the fire, the sunshine, or some other condition was the cause.

But does this rule of logic really dispute our proposition that an effect has always the same cause? No; for what we mean by a cause does not include many accompanying circumstances that play no part. Clearly in the example it was the heat that melted the ice in both cases, and the rest was a mere circumstance. Logic has to take into consideration the inaccuracy of stating our hypothetical propositions. Whenever we say given a, b will follow, all we mean is, that a includes the cause of b. Of course, it may include thousands of other non-essential facts. Ordinarily, if you heat ice above a given temperature it will melt, no matter how you do the heating. But we can readily put this same truth in a less exact way and assert that if you put ice near a hot fire, it will melt.

but it does follow if cause and effect be stated with complete accuracy.

When we maintain that any effect has always the same cause, we mean by "cause" the exact cause robbed of all superfluous circumstances. In short, we maintain that it does follow, in our first example, that a is b if c is d, *provided that* a *being* b *is the cause considered apart from all non-essential elements.* It is quite true that you and I may never in any given case discover with surety just what are the essential or the non-essential elements. Therefore in all cases of practical reasoning we have to keep to the rule logic has formulated. But, as philosophers, we are concerned with principles.[1]

The justification of this conclusion: (*a*) otherwise some element in our cause would be causeless, (*b*) otherwise the past would be unknowable.

If the effect is the same in two cases of causation in which the causes are different, then some element or elements of these causes, namely, those wherein they differ, might be without effect. To put it otherwise, can a and b

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[1] Their application may give all sorts of trouble, but that is not our concern. In fact, this same liability to inaccuracy exists in determining the true consequent in a hypothetical proposition. Do you and I ever state exhaustively what does follow if a is b? Clearly, thousands of other things besides c being d may follow. The reason why this gives us no trouble in arguing is that we have made a being b so inclusive that no matter what else may follow, c being d will be contained in the consequent. But our philosophical principle should not have this (quite practical) indefiniteness. It must be exact. Hence, as we say that given the cause, the effect in its complete fulness follows; so also do we now maintain that, given the effect, there will have preceded not only the exact cause, but always the same exact cause.

both give rise to *c*? No, they cannot, because we should never rightly regard our analysis of the case as final, first, until we had found in *a* and *b* some common element and ascribed to it the authorship of *c*; and, secondly, until we had found some elements in the result of *a* different from the result of *b*. We could never rest with the statement, *a* and *b* both cause *c*. It would always remain a problem to find the unknown similarity between what seemed to be different cases. (This is the same principle that forms the philosophical basis of the atomic theory.) No solution of a problem of causation can rest complete until we have reduced the laws of nature to terms that call for no further analysis. But a deeper (an epistemological) justification can be found, in fact is really presupposed, in the foregoing argument. When given any event, we try to discover its effect; likewise when given an effect, we search for some event, its cause. Were it not true that the same cause has ever the same effect, we should never be able to predict the effect; and likewise were it not true that the same effect has the same cause, we should not be able to determine what had been the cause. That is, just as the principle by which we know the future asserts that causes have always the same effects; so also does the principle by which we know the past assert that effects have always the same causes. In short, the principle of causation reads both ways. Under the same conditions the same result follows, and the same result follows only under the same conditions.

CHAPTER XXX

THE CAUSAL RELATION BETWEEN MIND AND BODY[1]

The two theories of Interaction and Parallelism.

HAVING formulated the principles of causation, we turn to the more specific problem of the causal relation between the two great classes of things,—minds and bodies. On coming to our new field of reflection, we find two rival theories already there disputing the mastery. The one theory, that of interaction, maintains that mind and body are causally related, that body acts on mind, and mind on body. The other theory, that of parallelism, claims that mind does not act on body or body on mind, but that both lead a life of uniform coexistence. The mind changes in accordance with the changes of the body, and the body in accordance with the changes of the mind. But both series of changes, the mental and the bodily, are ultimately independent the one of the other. They simply run along in parallel uniformity.

Professor Paulsen, a leading advocate of parallelism, states its argument as follows:—

"Two forms of the relation between physical and psychical occurrences are conceivable after we have excluded the relation of identity. We can have either a causal relation or a relation of mere coexistence in time.

"We must first elucidate the two conceptions. Let us imagine with Leibniz the skull of an animal or man to be as large as a mill. Suppose one could walk around in it and observe the processes in the brain as one can observe the movements of the machinery and the cogging of the wheels in the mill. What brain-processes would the observer expect to see according to each of the two theories?

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[1] *Parallel Reading.*

The student should not fail to read Paulsen, Introduction, pp. 83–91. Cf. also Stout, Manual of Psychology, Chapter III, Sections 3, 4, and 5; Ebbinghaus, Grundzüge der Psychologie, Leipzig, 1902, Section 4.

Against Parallelism, cf. Ward, Naturalism and Agnosticism, Lectures XI, XII, and XIII. Also Spaulding, Beiträge zur Kritik des psychophysischen Parallelismus vom Standpunkte der Energetik. Halle, 1900.

"The adherent of the parallelistic theory must evidently expect the following. The physical processes in the brain form a closed causal nexus. One would see as little of psychical processes, of ideas and thoughts, as in the movements of the mill. A man crosses the street. Suddenly his name is called; he turns around and walks toward the person who called him. The omniscient physiologist would explain the whole process in a purely mechanical way. He would show how the physical effect of the sound-waves upon the organ of hearing excited a definite nervous process in the auditory nerve, how this process was conducted to the central organ, how it released certain physical processes there which finally led to the innervation of certain groups of motor nerves, the ultimate result of which was the turning and movement of the body in the direction of the sound-waves. All these occurrences together combine into an unbroken chain of physical processes. Alongside of this, another process occurred of which the physiologist as such sees nothing and needs to know nothing, with which, however, he is acquainted as a thinking being who interprets his percepts; there are auditory sensations which aroused ideas and feelings. The person called heard his name; he turned around in order to discover who called him and why he was addressed; he perceived an old acquaintance and went to greet him. These occurrences accompany the physical series without interfering with it; perception and presentation are not members of the physical causal series.

"The case would be different if the theory of interaction were correct. The adherent of this theory must expect the physical process to be interrupted at certain points — at such, namely, at which psychical occurrences enter as members of the causal series. If nervous movement is the cause of the sensation, it must vanish as such, and in its place, sensation must appear. The motion of th[illegible]all *a* has as its effect the motion of the ball *b*, that is[illegible]rst motion disappears, and in its stead there appea[illegible] definite motion of the second ball. A motio[illegible] heat, that is, the motion vanishes, and in it[illegible] appears a definite amount of heat. The same [illegible] to happen in our case: instead of a lost [illegible] would appear a sensation, or an idea of [illegible] and quality, as its equivalent. The i[illegible]er, an object of external observation; ide[illegible] cannot be seen as such or be discovered [illegible]ds of natural science at all. For the physicist [illegible]ld then be a break in the causal chain; a link w[illegible] wanting from the physical series. Should our mat[illegible]stic philosopher refuse to grant this, holding that the idea in turn is also something physical, some form or other of motion, he would thereby, of course, prove untrue to his hypothesis and go over to the parallelistic theory. For, if he were right, the natural scientist would, of course, be concerned only with the physical, and could ignore the fact that the process has as its concomitant a state of consciousness. The physical effect and not the sensation as such would then be the equivalent and effect of the physical cause.

"These are the two possible conceptions. Which of them is true?

The doctrine of interaction conflicts with that of the conservation of energy, hence must be rejected.

"This question, being a question of facts, can be decided only by experience. In themselves, both views are conceivable. Has experience settled the matter? I think no one will claim that final observations have been made by which either one of these conceptions would exclude the other. Perhaps they will never be made. Observations and experiments are powerless in the presence of these unapproachable and most complicated processes of organic life.

"Nevertheless, the natural scientist will not long be in doubt as to which notion to choose. He will say that the analogy of combined experience leads him to assume a continuity of physical processes even in this case. He would regard it as a presumptuous and impracticable demand to assume that motion is transformed, not into another form of motion, not into potential physical energy, but into something that does not exist at all physically. Transformation of motion or force into thought, into pure states of consciousness, would for the natural scientific view be nothing but the destruction of energy. Similarly, the origination of motion from a purely mental element, for example, from the idea of a wish, would in physics be equivalent to creation out of nothing. Consequently he would be forced to accept the parallelistic theory instead of the other which assumes a causal relation."[1]

But what is ultimately the point at issue? It is a question of fact, not one of causation.

The dispute between these two parties amounts, ultimately, to a question of fact. If we take some external stimulus *a*, does it result in a brain (or better, physical) state *b* and a mental state *B*, or does it result only in *B*? State *b*, of course, by hypothesis is the full physical effect of *a* in accordance with the laws of physical conservation. Now according to the interactionists, brain state *b* does not occur, but only mental state *B*, whereas the parallelists maintain that both *b* and *B* result.

Mind and Body are causally related.

Our problem is to settle this question. But first let us mark its bearing on the general law of causation. Clearly, no matter which party is right, there is a causal relation between *a* and *B*; for both maintain a necessary uniformity of coexistence and sequence between the two worlds of mind and matter, and this is all we mean by causation. Neither party then denies the ultimate unity of the universal system of causation. If they did, clearly we should have two worlds — not two worlds in the popular sense, but two absolute worlds in the philosophical sense. Then again, the uniformity that is granted by both parties to obtain between the two worlds would need explanation. The only conceivable explanation, as we have seen in contending against pluralism, is to grant the ultimate unity of the two worlds. In short, the dualism between mind and matter is not a dualism of substance, namely, a pluralism. The same infinite eternal substance manifests itself in both orders of being, and determines their character. Both follow necessarily as consequents of the previous states in which substance has manifested itself; and further, since the world at large is involved in every act of causation, the body is as fundamentally in causal relation with the mind and the mind with the body as are any two bodies with each other. Neither party need dispute this proposition; and if they did, we should have to refer them to the earlier problems that we have brought up and attempted to solve.

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[1] Paulsen, Introduction, pp. 85-86.

Thus we maintain against both schools that they should not state their problem as they do. Let the problem be stated not as one of causation, but as a problem questioning the existence of a fact, as we have symbolized it, the existence of *b*. Does *b* exist, is it a fact? Yes, the parallelist is in the right if we believe in the conservation of motion, and in the dualistic view that mind is non-spatial. The quantity of motion cannot alter, and hence the result of *a* does not involve a loss of motion. If this motion be not in the brain, then it must be elsewhere; and that would mean that the brain is not the only physical organ directly connected with our mental life.

But the parallelist is right about the facts. There are the parallel facts whose existence is asserted by his theory.

Thus the problem should be decided rather in favor of both. The relation between mind and body is causal, but there is also that physical effect claimed by the parallelist. This view gives the physiologist all he need desire in the theory of parallelism. The presence of brain event *b*,

Conclusion.

coexisting with *B*, and being the full mechanical equivalent of *a* enables him to adopt the automaton theory of nervous action. From beginning to end he may still explain nervous action mechanically.

Yet, on the other hand, the mental state *B* is to the psychologist the effect of *a*. There is no other fact revealed to him to which he can refer as the cause of *B*, and there is no reason why he should cease to do so. *In short, the stimulus a has as its effect a twofold event, a brain state b and a mental state B. b is the mechanical equivalent of a, and forms the physical event coexisting with B. Thus b and B are truly parallel or coexisting events.*

CHAPTER XXXI

PANPSYCHISM

Our new problem: Does a mental life exist not only parallel to brain activity but also parallel to all physical activity?

IN accordance with the foregoing chapter, we must assume that mental life exists parallel to certain of our brain states. The one infinite substance in its eternal course of manifestations reveals itself at this point in a twofold way, as mind and as body. But why at this point only? Why does substance manifest itself as mind only in connection with certain molecular activities (if such they be) in things called brains? "Why?" do you ask? Who said so or dare say so? You and I know that a mental life exists in connection with our bodies; and as we have seen, by analogy we believe that a similar life exists in connection with the bodies of our fellow-men and the higher animals. "By analogy," we say, because the only evidence is the likeness of their bodies and of their actions to our own. But mark well, such conclusions are positive, not negative. They tell us consciousness exists in connection with the bodies of these fellow-men and animals. They do not tell us that consciousness exists nowhere else. That question must be left open, or we have exceeded the limits of our evidence.

If, then, our conclusion that mental life is a manifestation parallel to certain physical events leaves it an open question whether or not consciousness exists elsewhere; what shall we say in reply to the new question, — Do mental states exist even where we have no very definite outward evidence? Does mental life exist not merely in connection with these particular physical events called brain states, but does it exist in connection with all the physical world?

The affirmative answer to this question is called *Panpsychism.* We can do no better than to listen to the words of one of its most eloquent and able advocates, Professor Paulsen. After defending the parallelistic theory, he proceeds with his argument by drawing panpsychism as the logical conclusion.[1]

The Argument for Panpsychism.

"First of all, let us consider the guiding principle. How can we at all decide as to the presence of psychical processes? The answer is self-evident. We become immediately aware of our existence only at one point, namely, in our self-consciousness. I can never know through immediate observation that, besides the sensations, ideas, and volitions which I experience in myself, similar processes occur in the world. What my neighbor feels and thinks, I do not know by observation, but by inference; all that I see is a physical phenomenon. I see movements and gestures, hear sounds which proceed from a body like mine, but I see no feelings and ideas; and no microscope or telescope can help me to see them. The feelings and ideas I add in thought by inferring from the analogy of the bodily processes which I see, the existence of analogous mental processes, which I do not see.

It is arbitrary to limit mental life to animals;

"How far may this inference be extended? The popular view, answers, as was said before, — As far as animal life extends. Animals are animated beings; all other objects — metals, stones, plants — are not animated; they are mere bodies. At the most, plants might possibly be considered as having souls, but not seriously. The plant-soul is a dream of childish fancy.

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[1] The student should not fail to read the whole of this section from which I am about to quote. Paulsen, Introduction, pp. 87–110.

This universal parallelism has been taught especially by two other philosophers, — Spinoza and Fechner. (Cf. Paulsen's text and footnotes.) Cf. also Fechner, Ueber die Seelenfrage, Leipzig, 1861.

"This view claims to be the self-evident and only possible view, but I am inclined to think that its assurance exceeds the force of its arguments. Indeed, it is purely arbitrary.

for there is no fixed boundary between animals and plants, both kingdoms are continuous:

"In the first place, how far does the animal world extend? Is it separated by a fixed boundary from the rest of the corporeal world, particularly from the vegetable kingdom? Common opinion presupposes this. It divides the corporeal world into three distinct kingdoms, in accordance with old scholastic concepts — into animal, vegetable, and mineral kingdoms. But modern biology has obliterated these fixed lines; here, too, it is confronted with the proposition that nature makes no leaps. Though the animal and vegetable kingdoms differ greatly, they approach each other very closely on the lower stages of development. There are numerous lower forms of life which have the characteristics neither of true animals nor of true plants. A separate group, the group of the protista, has been formed for them, an intermediate kingdom in which plant and animal meet. If there is no fixed boundary line between the animal and vegetable worlds, if we are obliged to regard them as two branches grown on one stem, the question is forced on us, — Are plants also bearers of psychical life? Everybody concedes an inner life to animals, even to the lowest forms, however far removed they may be from the higher forms. We cannot, without being arbitrary, refuse to admit that the protista, the plant-animals or animal-plants in which the animal world gradually vanishes, also have an inner life. Hence the inference is obvious: Just as there is no fixed line of demarcation between the animal and the plant worlds, so there is no fixed limit to psychical life. Soul-life may extend over the entire organic world. . . .

"The further question arises at the conclusion of this discussion: Have we reached the end, is the parallelism between physical and psychical processes limited to the organic world? Or is there any meaning in the statement of the philosophers mentioned before, that it holds universally; that wherever physical processes are given they point to an inner being?

and likewise the organic and inorganic worlds are not essentially two, for the one becomes the other.

"Let me suggest a few facts which may at least show that the question is not as absurd as at first sight it seems to popular thought. The organic and inorganic bodies form, not two separate worlds, but a unitary whole in constant interaction. There is no difference in substance; organic bodies are composed of the same ingredients of which inorganic bodies consist. The carbon, nitrogen, hydrogen, and oxygen of which a plant or animal body consists are identical with the substances found in inorganic constructions. Matter, therefore, is capable of organization, and this organization is a state of unstable equilibrium, in which the particles of matter continually change, the form remaining the same. Organic bodies constantly give off and take up matter. After a certain space of time, a complete change of matter has taken place; new elements now appear as the bearers of organic and psychical life. — Furthermore, new animal and plant bodies are constantly arising. A few handfuls of grain placed in the earth yield a bushel of wheat; a pair of mice left alone with the wheat soon change it into hundreds of living and feeling animal bodies with souls. Whence came these souls? Did they preëxist somewhere, and did they suddenly pass into the bodies prepared for them? Or, if this conception repels the natural scientist, did they arise by the division of the parent soul? What a strange and unintelligible notion!

The higher animal life arose ultimately out of inorganic matter; should we

"And how did soul-life originate to begin with? Modern biology is forced to the assumption that organic life had a beginning on earth, and that the first creations arose from inorganic matter, spontaneously, through parentless generation. Whence did psychical life arise? Is the first feeling in the first protoplasmic particle some-

not then say the psychical life also arose out of elements possessed by the inorganic?

thing absolutely new, something that did not exist before in any form, of which not the slightest trace was to be found before? That, of course, would be an absolute 'world-riddle'; it would mean a creation out of nothing, and would baffle the natural scientist as much as if he were expected to believe that the protoplasmic particle itself was created out of nothing. But why does he not reject the inconceivable in the former case just as he does in the latter? He assumes that organic bodies arise from pre-existing elements. Entering into new and more complicated combinations, these bodies are enabled to perform new and astonishing functions. Why does he not make the same natural assumption in this case as well, and say that an inner life was already present in germ in the elements, and that it developed into higher forms? Indeed, hylozoism is a conception which almost irresistibly forces itself upon modern biology. . . .

Further, the inorganic is the scene of constant and spontaneous activity; we should not call it *dead matter*.

"Still, the objection is urged: Is it not inconceivable that lifeless, rigid matter should be the bearer of psychical life? And is not the very condition absent here, from which alone our previous discussion inferred an inner life, namely, an analogy between physical processes and those of our own body? Do we not miss here all spontaneous activity, all activity coming from within?

"It seems to me that we are ourselves responsible for this inconceivability, because we have formed an arbitrary conception of matter. Having once defined matter as an aggregate of atoms, of absolutely hard and rigid little blocks that are moved without being determined from within, by pressure and impact only, we naturally find it inconceivable that matter should be determined from within and should move by inner impulses. But what compels us to form such a concept? Surely not the facts. . . .

"Spontaneous activity everywhere! Your inert, rigid matter, movable only by impact, is a phantom that owes its existence, not to observation, but to conceptual speculation. . . .

"Hundreds and thousands of atoms are united in the molecule into a system that preserves a more or less stable equilibrium by the mutual interaction of its parts, and at the same time is quickened by other movements — by such as are felt by us as light and heat, and others, which appear in electrical processes. And this system, in turn, is in constant interaction with its immediate surroundings as well as with the remotest system of fixed stars. Is it then absurd to ask whether we have, corresponding to this wonderful play of physical forces and movements, a system of inner processes, analogous to that which accompanies the working of the parts in the organic body? May not attraction and repulsion, of which physics and chemistry speak, be more than mere words; is there not an element of truth in the speculation of old Empedocles that love and hate form the motive forces in all things? Certainly not love and hatred as men and animals experience them, but something at bottom similar to their feelings, an impulsive action of some kind. . . .

May we not talk even of a larger life than our own, — a life of our earth, of our solar and sidereal systems?

"I shall touch upon another point in this place, and shall approach it from another side later on. Is there a higher, more comprehensive psychical life than that which we experience, just as there is a lower one? Our body embraces the cells as elementary organisms. We assume that in the same way our psychical life embraces the inner life of the elementary forms, embracing in it their conscious and unconscious elements. Our body again is itself part of a higher unity, a member of the total life of our planet, and together with the latter, articulated with a more comprehensive cosmical system, and ultimately articulated with the All. Is our psychical life also articulated with a higher unity, a more comprehensive system of consciousness? Are the separate heavenly bodies, to start with, bearers of a unified inner life? Are the stars, is the earth an animated being? The poets speak of the earth-spirit; is that more than a poetic metaphor? The Greek philosophers, among them Plato and Aristotle, speak of astral spirits; is that more than the last reflection of a dream of childish fancy?

"It would be presumptuous foolishness to treat of these subjects in dogmatic definitions and arguments. Still, it seems to me, a negative dogmatism is equally out of place. To him who knows the earth solely from his globe as a pasteboard sphere, or from his book as a huge lump with a fiery, liquid interior and a thin rigid crust, — to him, of course, the question itself will seem ridiculous and absurd. On the other hand, he who lives in the real world himself, will not, if he is at all endowed with a little imagination, find it so difficult to conceive the world as a large animated being. Fechner's whole soul is given to that thought. With ever changing expressions he urges his contemporaries, at last to awake from their sleep and to contemplate objects with a clear eye. Does not the earth really live a universal life? Are not all its parts, the liquid interior and the firm crust, the ocean and the atmosphere, comprehended into a great whole whose parts interact in manifold ways and yet in harmony? Ebb and flow, day and night, summer and winter, are they not life-rhythms, similar to those which the individual life experiences, or rather, do not animals and plants with their little rhythmical vital processes take part in the great life of the earth? Is not the life of the earth mirrored in their sleep and waking, their bloom and withering, their origin and decay? Forsooth, the earth is not merely a point of support, on which living beings, like grains on the barn-floor, accidentally meet each other, but the womb from which they proceed. The animal and plant worlds are products of the earth, they remain members and organs of its life as much as cells are members and organs of the body. The geologist interprets the history of the earth from the traces of the organic beings which it produced in every epoch; the geographer describes the earth by means of the most characteristic living forms in every zone. These determine the impression which the earth makes on the mind, and in a considerable measure also determine its very shape. Their life is a partial process of the total life; matter runs in a continuous stream through the organic bodies. Why should not the being which produces all living and animated beings and harbors them as parts of its life, itself be alive and animated?"[1]

Criticism, of the Panpsychist-Argument.

What reply shall we make to this forceful argument? There is only one part that excites our doubt. Must we suppose that there is such a complete analogy between the ultimate physical concomitant of our mental life and all physical action that what is true of the former is true also of the latter? At first sight it certainly seems so. Of course we do not know just what type of physical event this ultimate concomitant is. But let it be what it may; we are forced to assume that it is a motion of some body. In short, all physical activity, we must believe, is analogous ultimately to all other, that is, in so far as it is merely physical. Therefore, let brain activity, or whatever else it may be, be what it will; it is analogous in its purely physical properties to all other physical events. Hence there is bound to be the ultimate analogy for which we search.

True, we must grant some analogy between all physical things;

Now if the two phenomena are really and essentially analogous, we must draw the panpsychist's conclusion. But what is an essential analogy? What constitutes an analogy from which we have a right to ascribe to one object characteristics revealed to us in an analogous object? Essential analogy can mean but one thing, or the argument is thoroughly fallacious; and that one thing is, *complete similarity in that element which is causally related to the characteristic in question.*

but what constitutes a valid *argument from analogy?*

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[1] Paulsen, Introduction to Philosophy, pp. 94–108.

Any analogy will not do. The analogous property must be *necessarily* related to the property at issue.

b is like *a*, *a* is *x*, therefore *b* is *x*. Not a bit of it! First you must show us wherein *b* is like *a*. This pole is like this man, this man walks, therefore this pole walks. No, indeed. The man and the pole are alike in being six-footers, but this common characteristic has naught to do with walking. In short, for the argument from analogy to be valid, we must show that the common characteristics are causally related to the predicate we wish to assert in our conclusion.[1] If *x* is true of *b* because it is true of *a*, this must be so because *x* is necessarily connected with that element of *a* which is common to both *a* and *b*.

To apply this conclusion to panpsychism, the whole problem must rest upon our being able to prove that consciousness is necessarily connected with that element of brain-activity which is common to all physical manifestations. Is this true; can we show it to be so? We certainly cannot. No doubt the physical concomitant to mental events is in some of its aspects similar to all types of physical action, but this does not prove it to be similar in those aspects which are essential to it as a concomitant of mental events. *Using the same argument we might prove that everything on earth is blue!* No doubt there is an analogy between all objects blue and not blue; but they are not necessarily analogous in the essential element in question.

We must leave Panpsychism an open question.

In short, all that panpsychism has ever proved is that we have no information that enables us to draw the line between those physical manifestations accompanied by consciousness and those not so accompanied. There is no definite break between our human brain and its activities and any physical event you may wish to name. The brain in its origin has developed out of cosmic dust, if you will, and has done this by very gradual transformations. Nobody knows at what period mental events began. We have no information that will tell us. Perhaps they did not begin, perhaps they are as universal as is the physical world; and then again perhaps they are not. The argument from analogy cannot apply unless we are informed accurately concerning the real physical concomitant of mental events.

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[1] In other words, there is no *ultimate* class of argument, "argument from analogy." This argument to be valid must go back to identity. *b* is like *a* must mean *b* has property *p*, and *a* is *x* must mean *a* is *x* because it has property *p*. In short, the real argument is: *b* is *p*, *p* is *x*, therefore *b* is *x*.

But it is a problem for science rather than for metaphysics.

Further, this is a problem for science to determine. No amount of reflection will give us the information. The only way we could reach a panpsychist conclusion by reflection, would be to return to the problem we have already discussed, whether or not we must suppose that certain elements of mental life are conserved just as we have to suppose the conservation of mass and motion. If they are conserved, we must suppose that the cosmic dust whence our brain may ultimately have sprung contained psychic elements. In that case we should have a far stronger argument for assuming a universal mental existence beside the physical. But, in the meantime, we have no more right to say that consciousness is an event universally parallel to physical action than we have to maintain that the color blue is universal and eternal. One thing that nature surely shows us, is, that new elements do arise, for example, new colors. The physics of one color is analogous to the physics of another color and to all physical action; but this does not make one color the same as another, nor does it make color itself universal. Along with the likeness that forms the analogy is also a difference. Now it must always be a question whether or not the like elements or the unlike elements form the true correlate of the color, or, in our problem, of consciousness. In the case of color we have every reason to say that the unlike elements must be, at least in part, their physical correlate. Therefore, accepting even an extreme mechanical view of nature, it may be that the true physical correlate of consciousness is often absent.

Conclusion. Thus we adopt against panpsychism the following conclusion. The panpsychist must show that the physical correlate of consciousness is universally present in all physical action as such. This may be true, but we can find it out only through empirical means; and how indefinitely distant are we from doing so! We have everywhere within the world the constant creation, or coming into being, of new elements, such as the secondary qualities for instance; and if one element of the world, why not consciousness? This does not make consciousness a mere quality of matter; but anyway, what if it did? That it does not we have shown; for the qualities of matter are spatial, whereas consciousness is not spatial. The only means by which to prove through philosophy the universality of consciousness is to find in the world of spirit some principle of conservation. This question we have already discussed, and we have shown that there is no such principle. Hence our final conclusion: The question whether or not mental life is universal is one that cannot be learned through philosophic reflection, but only, if ever, through empirical science. In short, the question does not belong to philosophy but to science.

V. COSMOGONY[1]

CHAPTER XXXII

CREATION[2]

Cosmogony and its problems.

IN ontology and cosmology we have studied two of the three chief problems of metaphysics, — the essential attributes and the ultimate constitution of reality, — and hence we have one problem remaining, — that of creation, or the coming of the world into being. The discipline of philosophy devoted to the solution of this problem is called Cosmogony.

Its problems may be grouped under three heads; for we may ask concerning the genesis of the world as a whole much the same questions that we might ask concerning the genesis of any particular object such as our body, a house, or a carpenter's tool. We may inquire, — first, whence came it, or what was its origin; secondly, through what series of changes does it go after its origin; what is its course of development, growth, or change; and finally, for what ultimate purpose has it been brought into existence, what office does it fulfil, what is the outcome of its existence, what is its end? When applied to the world, the first question is called the problem of creation, the second the problem of evolution (cosmic evolution), and the third the teleological problem, or that of the end or purpose of the world.

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[1] *Parallel Reading.*

For many of the topics to be treated under Cosmogony the student will find interesting parallel reading in Paulsen, Introduction, Book I, Chapter II, especially Sections 2, 3, and 4.

[2] *Historical Note.*

For the history of the theories of creation the student should consult the histories of philosophy, especially the accounts given of the systems of the following men, — Aristotle, Plotinus, St. Augustine, Descartes, Malebranche, Berkeley, Spinoza, Leibniz, Kant, Fichte, Schelling, Hegel, Schopenhauer, and Spencer.

Let us turn, without further introduction, to the problem of creation.

The mythological views of Creation and their later modifications.

We have in the ancient mythologies, long before science had its birth in Greece, accounts of how the world came into being: and, as might be expected, they tell us that the first stage in the development of Greek science as it emancipated itself from religion was theology. "Aryan naturalism, modified by the national genius and the physical conditions under which it developed, forms its starting-point. This naturalism had passed the period of infancy long before the appearance of philosophy. The luminous ether (Diaus-Zeus), the sun and its fire (Apollo), the storm-cloud and its thunderbolts (Pallas-Athene) were originally taken for the gods themselves. Just as the child transforms its surroundings into an enchanted world, and regards its doll and wooden horse as living beings, so the humanity-child makes nature after its own image. For the contemporaries of Homer and Hesiod, such objects are merely the sensible manifestations of the invisible divinity concealed behind them, a being that is similar to the human soul but superior to it in power, and, like it, invested with immortality. The gods form a kind of idealized, transcendent humanity, whose vices as well as virtues are magnified. The world is their work, their empire, the theatre of their wishes, defeats, and triumphs. Man, whom they envy rather than love, exists for their pleasure. They are the highest personifications of the will-to-live and are jealous of their unquestioned superiority; hence they deny him perfect happiness. The most assiduous worship, the richest sacrifices, the most perfect fidelity, cannot move them when our prosperity displeases them. Hence the melancholy which breathes in the gnomic poetry of a Solon or a Theognis, who prefer death to life, and esteem them happy who have never been born, or who die young.

"In the measure in which the moral conscience is developed and refined, religious ideas are transformed and spiritualized. The gods of Homer, who reflect the exuberant, versatile, and quarrelsome youth of the Hellenic nation, are succeeded by the just and wise gods, the creations of its riper manhood (Pindar, Æschylus, and Sophocles). This *qualitative* transformation of the religious ideas is accompanied by a *quantitative* transformation. Polytheism aims at greater simplicity. The good, which the will perceives as its highest end, is synonymous with harmony, and harmony means unity in diversity. Religious and moral progress is in consequence a progress in a unitary and monotheistic direction.

"The moral consciousness, which among the Greeks is identical with the sense of the beautiful, finds a powerful ally in reason and its natural tendency to unity. Guided by the monistic instinct, theology asks itself the question, — Who is the oldest of the gods, and in what order do they spring from their common Father? and receives an answer in the theogonies of Hesiod, Pherecydes of Syros, and Orpheus. Here, for the first time, the philosophical spirit finds satisfaction; these fantastic conceptions are anticipations of the rational explanation of nature.

"To conscience and reason a third factor, experience, is added. This, too, assists in the transformation of religious ideas, by demonstrating, with increasing evidence, the impossibility of explaining all phenomena, without exception, by capricious wills. The facts of mathematics, because of their universality and necessity, especially defy theological interpretation; how indeed can we assume the fact that twice two is four or that the three angles of a triangle are equal to two right angles, to be the result of caprice and not of absolute necessity? In the same way the observation of astronomical and physical facts, and their constant regularity and periodicity, gives rise to the idea of a Will that is superior to the whims of the gods, of an immutable Justice, of a divine Law, of a supreme Intelligence. The pioneers of philosophy, men like Thales, Xenophanes and Pythagoras, who were the first to protest against theological anthropomorphism, were likewise mathematicians, naturalists, and astronomers, if we may so designate men who had an elementary knowledge of the course of the stars, the properties of numbers, and the nature of bodies."[1]

In mythology creation is an event in time, not an absolute beginning.

In the primitive myths creation is often analogous to birth. The world and even the gods are born, brought forth from some parent god. Whereas the tendency of a later theology is to separate more and more the world from God, and to make the act of creation less and less analogous to birth or to human manufacture. According to the second chapter of Genesis, God "formed man of the dust of the ground, and breathed into his nostrils the breath of life." Whereas in the first chapter, a loftier and therefore probably later conception, we are told that God talked to the waste and void, and they obeyed him by passing from chaos into the ordered world. Yet in all early theology creation is looked upon as a deed done after the manner of human acts and human intelligence. It is, like any other event, an event in time. It is not an absolute beginning. In fact, the world is often represented as existing beforehand in a chaotic form; and creation is described, not as the coming into being of the universe, but rather of its order. The world comes into existence out of chaos by means of an ordering power, the supreme deity.

In later days, when philosophic thought arises, the act of creation is separated more and more from all other acts. Creation is thought of as absolute. It is no longer regarded as an event in time. It is no longer the mere ordering of chaos into a cosmos.

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[1] Weber, History of Philosophy, pp. 17 ff.

The problem becomes one of absolute beginning. Theism and Pantheism.

The moment this new conception is received and understood, a fundamental difficulty arises; and so great has been this difficulty that even until now the teachers of cosmogony have been divided into two conflicting schools. If creation was an absolute beginning of the world, how did it come into being? On the one hand we may maintain that God created the world out of nothing, and that God lives entirely apart from the world. Or, on the other hand, we may maintain that we are unable to separate God and the world, and that the world is just as eternal as is God, that it is ultimately God's manifestation of himself. In short, we may have two schools, the one theistic, the other pantheistic.

The creation as taught by Theism not an absolute beginning.

The theist teaches that the world's creation was a creation out of nothing. But the pantheist replies: Unless we regard this creation as an act in time, that is, as an event in the eternal life of God, before which God existed and the world did not exist, how does it differ from creation as described in my theory? If the world had a beginning in time, we are called upon to give an explanation how it came into being; but to explain how it came into being would then require a study, not of the world merely, but of God and of God's life before ever the world was. Until we understood how God came to create the world, we could not understand the creation itself. *In short, such a creation is no absolute beginning, whereas human reason tells us that to be creation the beginning must be absolute. That is, the real problem of creation would have to be changed from one concerning the beginning of our world to one asking the origin of God's life; and like the old mythologies, its solution would have to discuss the origin of the deity.*

Creation cannot be an event in time.

Thus the creation that philosophy can accept as a true creation cannot be an event in time preceded by its cause, for the cause of such an event would itself have to be regarded as a mere event, that is, as a mere change (in time) of that which existed beforehand, and so as a change in the life of God. Creation must be an absolute beginning, or one that does not involve any previous existence as its explanation. It must be an absolute beginning, one beyond which the human reason does not need to go in order to be satisfied.

But if creation is timeless, we must give up theism to escape pluralism.

On this account theists have tended to say that creation was timeless. It was before all time (really a contradiction in terms), which, of course, means it was not an event at all. But if this be so, then the world is like God, it is eternal. However, theists refuse, with this admission, to concede that God and the world are one. God lives apart from the world; God created it not out of himself, but out of nothing. Its existence is distinct from that of God.

All this leads us to a different view of creation.

Now, much that has been said against pluralism at once disproves this theory of creation. Either the world leads a life absolutely apart from God and, without beginning or ending, is self-existent and self-explicable; or, on the other hand, it depends on God for its existence and can be explained only through God. The former view contradicts at once all theistic creation. It gives us two worlds, the world and God, both equally self-existent and self-explicable. The latter view gives an explanation of the world that, as we showed in a former chapter, forces us to suppose a unity back of both; for if the world depends on God, then God cannot be separated absolutely from it. Therefore we have to suppose an interaction between God and the world; and we must assume a unity back of the interaction. In short, with the rejection of pluralism we rejected also by implication the theistic account of creation.

How then shall we describe creation?

(a) Creation is not a beginning in time.

(1) *Creation is not an event in time.* There was no beginning nor will there be an ending to that constant process of change which we call the flow or stream of events. No matter how far back we go, there will lie

behind us a world with its events just as there did when we first looked back and viewed the course over which we came. Likewise, no matter how far on in the future we go, we shall find no end to the series. The world's life is eternal or infinite in time. Creation does not mean a beginning in this sense.

(b) It does not mean the separate existence of creator and creature,

(2) *Creation does not mean that the creator and the creature are two separate things, or entities.* We mean by the creature exactly what we meant by the manifestation, and we mean by the creator what we meant by the substance of the world. They are not two things or absolutely distinct entities, they are but two elements in the one world. The one is subject to change, the other is permanent. The creature is that which undergoes change; and when we say that creation had no beginning, we mean that the world of change had no beginning.

(c) but it means the very act of change itself.

(3) But if the world is eternal, why do we talk of creation at all, for the problem of creation is the problem of the origin of the world? Is there such a thing as creation?

There certainly is. Change itself is creation. The series of changes as a series is eternal; but each element that makes up the series is not eternal, but has a beginning and an end in time. If we look at any part of nature, we shall find ample illustration. All about us we see the great processes of nature going on. Science gives us an account how our solar system arose, how the crust of our earth was formed, how life mounted from the simplest beginnings to higher and higher forms, how in time our earth will be no longer habitable for any form of life that we now know, how in time the moon and the earth and the other planets will be drawn back into the sun. This process, part of which science has discovered, is, of course, itself only part of a still larger process, the history, or process, of our sidereal system. Were our knowledge sufficiently great, we should be able to trace it on back into the past, on through stupendous periods of time.

But even then, the only reason why our story would stop, would be our lack of information; and the same would similarly be true of our attempt to trace out the future. Thus nature's process is one of indefinite change, and one to which we cannot ascribe either beginning or ending.

On the other hand, however, each individual occurrence does not have the same history as did the whole. Each had a beginning and will have an end. There was a time when there was no sun, no earth, no man. Nations, peoples, and races have their day and pass into the non-existence whence they came. Or let us take events of daily observation. As we watch the sky at sunset, we see its colors rapidly changing. The cloud that a moment ago was pink has now lost every trace of the red and has become a grayish blue. The pink was, it did exist. We saw it gradually arise and gradually fade away. There was a time but a moment ago when it was not, then it was, and now it has gone forever. To-morrow's sky may give us a similar, even a quite similar view; but to-day's sunset, like to-day and all that was to-day's, has gone to join the company of events that we call *the past.* Here we have before us a fact beyond dispute, the coming into being of that which was not and the going out of being of that which was. We have the fact of change. *Change as such is creation, and the new is the creature.*

Change or creation is universal and constant.

This process of change we must regard as universal. Excepting those aspects of the world which are permanent, that is, its substance, all is undergoing change. The world of to-day is never the world of yesterday. Back of the difference between to-day and yesterday, there is an identity which we have called substance; but along with this identity that makes the world of to-day one with the world of yesterday, there is a perpetual change or newness to the world. The world of yesterday has ceased to be, and a new world, the world of to-day, has come into being, only in time to give place to a new world, the world of to-morrow. The process as a whole had no beginning, nor will it have an ending. There never was a time when to-day was not arising to take the place of yesterday, nor a time when to-day was not giving place to to-morrow. But what is true of the world-process as a whole is not true of it in any one moment of its existence. Each moment makes a new world, a new manifestation of the creator, the world of the moment comes into being with the moment and goes out of being likewise with it. Creation is not an event that takes place "once upon a time"; but it is a fact ever present, it is the ever-taking-place of events, it is the ever-coming-into-being of the new manifestation and the going-out-of-being of the old manifestation.

(*d*) How was the world created?

(4) But *how* is the world created, how does the individual thing with its changing states come into being? Before this question can be answered, we must learn the meaning of the very ambiguous word "how."

Three possible meanings of the question: (α) After the manner of human workmanship.

First, "how" in our question could denote the means by which anything came into being or was made, that is, the material or stuff out of which it was made, the instruments of construction, the intelligence and skill of the maker, and the particular laws of causation to which he had to conform in order to bring about his result. This meaning of our question could apply to the building of a house, or any other form of human construction. But clearly all this is not what we mean by creation.

(β) The laws of causation.

Secondly, we might leave out all thought of a workman and restrict the meaning of the word "how," solely to the laws of nature, that is, the laws of causation in accordance with which the changes taking place in the world always occur. These laws are simply uniformities of coexistence and sequence, or the order of occurrence of events. If we mean this by our question, then clearly all that science learns about causes and effects, or laws of nature, will be an answer to the problem of creation.

(γ) The deduction of the world as one necessarily following out of the nature of the Absolute.

But there is a third possible meaning, and this is the meaning that has generally been given to our question. To tell the order in which events have to occur under any given set of conditions, does not explain why that order has to be just what it is. By actual observation we learn that *a* is followed by *b*, and *b* by *c*; but *why* is *a* followed by *b* rather than by *f* or *l*? In fact, *why* is it followed by any event of the series *a* to *z*, and not by some entirely different sort of event, *α* to *ω*? *Why* do we have just the world we do have, why not quite a different world? Is this the only world that there could have been, or could there have been another? In short, did the world have to be; and if it did, why did it have to be just the world that it is?

To show that the world has to be, that its existence follows necessarily from the nature of its creator, requires us to find the same relation between God and the world as that which exists between the premises of an argument and its conclusion. In fact, it calls for a logical deduction of the world from God's nature, presupposed as a premise. God's nature must be described in our premise, and this premise must be accepted as a self-evident truth, and then it must be shown to involve as a necessary consequence the proposition that the world had to be, and had to be just the world that is.

Meaning of term *necessity* in connection with creation.

In short, all that necessity can here mean is rational necessity; and that means, the world can be deduced out of the absolute. The only thing that can be necessary is the permanent, not the changing; and when we say that the permanent is necessary, all we mean is, that it is really permanent, or eternal. The world is a necessary world, then, only in the sense that its laws of causation, and some other relationships that we have considered, are permanent. It is a necessary world only in the sense that all its events and changes obey the laws of causation and conservation.

But let us suppose it to be maintained that God selected the world he was to create, that there might have been another world than there is.

Clearly, if there might have been another world than there is, we could never deduce out of the nature of the creator the world that is; for by hypothesis other worlds than this would be consistent with his nature. The thinker that accepts this view reduces the problem of creation to answering how, after it was determined which world should be, that world was brought into existence by the creator. Thus he really maintains that the selection of the one world out of the possible worlds is inexplicable. If it were explicable, it would follow necessarily out of the nature of the creator. Therefore the man who believes that God chose the world out of many possible worlds, must either give up his belief or maintain that the world cannot be deduced from God's nature.

We have, therefore, but the one theory to deal with, the theory that maintains it to be philosophy's duty to deduce the world from God's nature.

Criticism of this third view of creation. It asks of us a logical impossibility.

The theory is absurd. To draw a valid conclusion in a deductive syllogism, our conclusion must not go beyond the information given in our premises. If we do so, we commit the formal fallacy of illicit minor or major, or the material fallacy of non sequitur. Now by hypothesis, in the problem of creation we are asked to explain the world as the necessary consequence of a creator different from that world. In short, the world that follows necessarily out of the creator as a conclusion follows from its premises, must be different from the creator. Such a demand is a rational absurdity.

But you may ask, are we sure that this is demanded of us? Clearly, because the very thing we are asked to explain is change, or the coming into being of that which was not. Either the world we are asked to explain is something quite new, that is, something that was not, or it existed from eternity. If the former, we cannot deduce it from the creator, for the creator must by our hypothesis of necessity be other than the creature. If the latter, we simply deny all creation, in short, deny the existence of change in the world and go back to Parmenides.[1]

The problem of creation is one with the discovery of the laws of causation.

Hence there is but one problem of creation, the second in our list. The third is an absurdity, and the first was inapplicable. *The problem of creation is synonymous with asking what are the laws of creation, the laws of occurrence.*

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[1] Spinoza's view that creation was something that follows out of the nature of substance, as the properties of a triangle follow out of its nature (that is, definition), has no applicability whatever to creation. The properties of a triangle are permanent, not changing properties, whereas what we have to explain in creation is change. To suit Spinoza we must go back to Parmenides. However, if Spinoza accepts change as a reality, his account of what constitutes a rational explanation of creation is absurd; and Parmenides we have already dealt with.

CHAPTER XXXIII

THE DOCTRINE AND PRINCIPLES OF EVOLUTION[1]

The problem of Creation is to determine the universal Law of Change.

THE problem of creation requires us to search for the laws, in accordance with which creation, or change, takes place. This is one of the great tasks of science, and has been accomplished in so many ways during the past few centuries. But the problem of creation requires more than this; it requires us to determine not merely the order in which this or that particular change takes place, *but how all change takes place.* In fact, it is this latter question that does in the narrowest sense constitute the problem of creation. True, any change is a creation; and the law in accordance with which the change takes place is a law of creation. But only a universal law of change, that is, a law bearing upon change as a whole, will give us an answer to the problem of world-creation.

But is not this statement ambiguous? What do we mean by a universal law of change? Is there not a difference between *a universal law of change,* and *a law of universal change?* What is the distinction, and which do we mean?

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[1] *Parallel Reading.*

One of the books that should be read early by every student of philosophy is Spencer's First Principles. As parallel reading for this chapter the student is referred to Chapters 12–23, which give Spencer's Theory of Evolution. This chapter practically presupposes that he has done this reading. Cf. also Ward, Naturalism and Agnosticism, Vol. I, Part II.

For a shorter and an historical account, the student will do well to read Lecture IX, "The Rise of the Doctrine of Evolution," in Josiah Royce's The Spirit of Modern Philosophy, Boston and New York, 1892.

A universal law of change would mean one in accordance with which any particular change takes place. It would be a law of each and every change. Whereas a law of universal change would be a law in accordance with which the universe in its totality changes. It would be a law of world-change. Clearly the difference between the two is very great; and, as we shall see, the one is a reasonable problem, and the other a rationally impossible one. A universal change — a change that includes in it the whole world — would mean the change of an infinite entity. But what does "the change of an infinite entity" mean? By hypothesis it does not mean a characteristic common to all individual changes; on the contrary, it means a change made up of all individual changes, and these are infinite in number. It means that we are to take the whole world as one object and tell the world's history.

This law does not mean the law of universal change, for this would be as a problem rationally impossible.

Now, our previous discussion of what is meant by the infinity of the world showed us that we can never deal with the world as a totality. We found that "its infinity" meant that no matter what part of it we made the object of thought, there would be more beyond, no matter how large that part might be either in duration or extension. Hence, whenever we deal with the world as a thing, — that is, as though we could grasp it in its totality, — we have put limits to that which by hypothesis has no limits. Supposing the world were an infinite ocean, we might know enough about the properties of water to learn laws that would apply to every part of the ocean. But how different a task it would be to decide what takes place in the ocean as a whole. Does the ocean move as a totality? The only way in which we can determine motion is by comparison with the relatively immovable. With what, then, could we compare our ocean to determine its motions? Clearly nothing. Our ocean as a whole could never be an object of study — an object we could compare. In short, *a law of change is not applicable to the world as a totality, because we can never treat the world as a totality without limiting it, without setting aside its infinity.*

However, the full proof of this, like so many other questions we have come upon, requires even a deeper analysis of the problem than we have given. Later on, in order to make our argument here thoroughly satisfactory, we must show that our minds cannot deal with the infinite in its totality, that all our knowledge is of finite entities, and that a problem which fails to recognize this rule leads us into absurdities. We refer to the doctrine of the relativity of knowledge. Therefore, presupposing a complete proof of this premise, we shall rule out of court as a rational absurdity any attempt to promulgate a law of universal change. Such a problem of creation is an absurd problem; and hence we must limit our question to the one that asks: What is the law in accordance with which every change takes place?

Spencer's Theory of Evolution as a Theory of Creation.

Of all the attempts to formulate such a law, the most generally known to-day is that of Herbert Spencer, and it deserves our study rightly above all others. He calls it a law of evolution. An excellent and brief summary of this law[1] can be found in the second volume of Höffding's History of Modern Philosophy. We shall quote it in part: —

All evolution has three Characteristics: —

"Every phenomenon has a history; it appears and disappears. Each science describes the history of *its own* phenomena; hence what we now have to do is to inquire whether these different historical processes exhibit common features; for if they do, we shall be able to formulate a

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[1] Spencer's formal definition runs: —

"Evolution is an integration of matter and concomitant dissipation of motion; during which the matter passes from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity; and during which the retained motion undergoes a parallel transformation."

general law of evolution. All development, it seems, exhibits with more or less clearness three different characteristics, which, taken together, constitute the complete concept of evolution. . . .

(*a*) Integration;

"(1) *Evolution as concentration* (or integration). — At the birth of a phenomenon there takes place a collecting, combining, and concentrating of elements which were previously scattered. If a cloud forms in the sky, or a sand heap on the shore, a development of the simplest kind has taken place, in which the process consists almost exclusively of a dissipation and an aggregation. Such a process of concentration took place, if we accept the hypothesis of Kant and Laplace, when our solar system passed out of its primary nebular state, in which its component parts were widely diffused and incoherent. All organic growth takes place by means of the absorption into the organic tissue of elements which were previously scattered about in surrounding plants and animals. We get a psychological example of the same process in generalization, and the framing of general concepts and laws; by their means we concentrate in one thought a number of different presentations and representations. Social evolution consists essentially in the progressive integration of individuals or groups of individuals who were formerly bound together by no close ties.

(*b*) Differentiation;

"(2) *Development as differentiation.* — Only in the very simplest cases can development be described merely as a process of concentration. Not only is there a segregation of the whole mass from the environment, but also, within the mass thus separated off, special concentrations take place, so that the development becomes compound. And, in the course of development, these special concentrations become more and more prominent, so that when we compare the earlier with the later stages we find a transition from homogeneity to heterogeneity. In the course of development of the solar system a segregation of different heavenly bodies takes place, each one of which has its own idiosyncrasy. Organic development proceeds from the homogeneous germ to the organism provided with different kinds of tissue, and with differently constructed and differently functioning organs. The whole of organic life was, according to Lamarck's and Darwin's hypothesis, homogeneous at earlier stages, for the existing differences of species are due to development from common parent forms. The senses develop, as we may see if we compare earlier with later stages, from less clear and less exact perceptive faculties to increasing clearness and exactitude, so that more and more differences can be apprehended. Mental life in general is estimated not only according to its concentration, but also according to its richness. In the course of social evolution the different estates and classes are formed through division of labor.

(c) Determination.

"(3) *Evolution as determination.* — But the process of dissolution is also characterized by differences appearing in what has hitherto been a homogeneous mass. In order to distinguish between development and dissolution, therefore, we must add the further characteristic that in evolution there is an advance from confusion to order — from undetermined arrangement to determined arrangement. Development is a passage from a chaos, of which the parts are scattered and homogeneous, to a united whole, the parts of which are heterogeneous, and at the same time stand in definite reciprocal connection with one another. Thus the solar system, the organism, consciousness, and human society are more or less ordered wholes. This third point of view really consists of a union of the two former; an ordered whole is one in which differentiation of the parts and integration of the whole go hand in hand. Everywhere in the world — in great things as well as in small, in the mental as in the material world — evolutionary processes as above described are going on. On the basis of a comparative examination of these processes, evolutionary philosophy formulates the fundamental features of the general history of every phenomenon. But what has thus been inductively discovered must now be deductively confirmed; it can be exhibited as an inference from the law of the conservation of force."[1]

The deduction of Spencer's Law:

To turn to Spencer's own words: —

"The difficulty of dealing with transformations so many-sided as those which all existences have undergone, or are undergoing, is such as to make a definite or complete deductive interpretation seem almost hopeless. So to grasp the total process of re-distribution of matter and motion, as to see simultaneously its several necessary results in their actual interdependence, is scarcely possible. There is, however, a mode of rendering the process as a whole tolerably comprehensible. Though the genesis of the rearrangement undergone by every evolving aggregate, is in itself one, it presents to our intelligence several factors; and after interpreting the effects of each separately, we may, by synthesis of the interpretations, form an adequate conception.

(*a*) The Instability of the Homogeneous;

"On setting out, the proposition which comes first in logical order, is, that some rearrangement must result; and this proposition may be best dealt with under the more specific shape, that the condition of homogeneity is a condition of unstable equilibrium.

"First, as to the meaning of the terms; respecting which some readers may need explanation. The phrase *unstable equilibrium* is one used in mechanics to express a balance of forces of such kind, that the interference of any further force, however minute, will destroy the arrangement previously subsisting, and bring about a totally different arrangement. Thus, a stick poised on its lower end is in unstable equilibrium: however exactly it may be placed in a perpendicular position, as soon as it is left to itself it begins, at first imperceptibly, to lean on one side, and with increasing rapidity falls into another attitude. Conversely, a stick suspended from its upper end is in stable equilibrium: however much disturbed, it will return to the same position. The proposition is, then, that the state of homogeneity, like the state of the stick poised on its lower end, is one that cannot be maintained. Let us take a few illustrations.

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[1] Höffding, History of Modern Philosophy, Vol. II, pp. 467–469.

"Of mechanical ones, the most familiar is that of the scales. If they be accurately made, and not clogged by dirt or rust, it is impossible to keep a pair of scales perfectly balanced: eventually one scale will descend and the other ascend — they will assume a heterogeneous relation. Again, if we sprinkle over the surface of a fluid a number of equal-sized particles, having an attraction for each other, they will, no matter how uniformly distributed, by and by concentrate irregularly into one or more groups. Were it possible to bring a mass of water into a state of perfect homogeneity — a state of complete quiescence, and exactly equal density throughout — yet the radiation of heat from neighboring bodies, by affecting differently its different parts, would inevitably produce inequalities of density and consequent currents; and would so render it to that extent heterogeneous. . . .

"The instability thus variously illustrated, is obviously consequent on the fact, that the several parts of any homogeneous aggregation are necessarily exposed to different forces — forces that differ either in kind or amount; and being exposed to different forces they are of necessity differently modified. The relations of outside and inside and of comparative nearness to neighboring sources of influence, imply the reception of influences that are unlike in quantity or quality, or both; and it follows that unlike changes will be produced in the parts thus dissimilarly acted upon.

"For like reasons it is manifest that the process must repeat itself in each of the subordinate groups of units that are differentiated by the modifying forces. Each of

from which it follows that the homogeneous

must ever tend toward heterogeneity.

these subordinate groups, like the original group, must gradually, in obedience to the influences acting upon it, lose its balance of parts — must pass from a uniform into a multiform state. And so on continuously. Whence indeed it is clear that not only must the homogeneous lapse into the non-homogeneous, but that the more homogeneous must tend ever to become less homogeneous. . . .

"On striking a mass of matter with such force as either to indent it or make it fly to pieces, we see both that the blow affects differently its different parts, and that the differences are consequent on the unlike relations of its parts to the force impressed. The part with which the striking body comes in contact, receiving the whole of the communicated momentum, is driven in towards the centre of the mass. It thus compresses and tends to displace the more centrally situated portions of the mass. These, however, cannot be compressed or thrust out of their places without pressing on all surrounding portions. And when the blow is violent enough to fracture the mass, we see, in the radial dispersion of its fragments, that the original momentum, in being distributed throughout it, has been divided into numerous minor momenta, unlike in their directions. We see that these directions are determined by the positions of the parts with respect to each other, and with respect to the point of impact. We see that the parts are differently affected by the disruptive force, because they are differently related to it in their directions and attachments — that the effects being the joint products of the cause and the conditions, cannot be alike in parts which are differently conditioned."[1]

All this clearly follows from the general law of causation. The different parts of the homogeneous mass must of necessity stand in different relations to the parts of the mass acting from without. As a consequence, we have the parts acted upon by unlike causes which, according to the laws of conservation and causation, must give rise to unlike effects.

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[1] Spencer, First Principles, Sections 149 and 155.

(b) The Multiplication of Effects,

But here a new factor must enter in, for these unlike effects become themselves causes, and being unlike, produce further unlike effects. We thus have a multiplication of effects.

"A single force is divided by conflict with matter into forms that widely diverge. In the case lately cited, of a body shattered by violent collision, besides the change of the homogeneous mass into a heterogeneous group of scattered fragments, there is a change of the homogeneous momentum into a group of momenta, heterogeneous in both amounts and directions. Similarly with the forces we know as light and heat. After the dispersion of these by a radiating body toward all points, they are redispersed toward all points by the bodies on which they fall. Of the sun's rays, issuing from him on every side, some few strike the moon. These being reflected at all angles from the moon's surface, some few of them strike the earth. By a like process the few which reach the earth are again diffused through surrounding space. And on each occasion such portions of the rays as are absorbed instead of reflected, undergo refractions that equally destroy their parallelism. . . .

"Universally, then, the effect is more complex than the cause. Whether the aggregate on which it falls be homogeneous or otherwise, an incident force is transformed by the conflict into a number of forces that differ in their amounts, or directions, or kinds; or in all these respects. And of this group of variously-modified forces, each ultimately undergoes a like transformation.

and hence increased heterogeneity.

"Let us now mark how the process of evolution is furthered by this multiplication of effects. An incident force decomposed by the reactions of a body into a group of unlike forces — a uniform force thus reduced to a multiform force — becomes the cause of a secondary increase of multiformity in the body which decomposes it. . . . Each differentiated division of the aggregate thus becomes a centre from which a differentiated division of the original force is again diffused. And since unlike forces must produce unlike results, each of these differentiated forces must produce, throughout the aggregate, a further series of differentiations. This secondary cause of the change from homogeneity to heterogeneity, obviously becomes more potent in proportion as the heterogeneity increases."[1]

(c) Segregation.

But to this principle of the multiplication of effects must be added a further truth. The various parts that are alike, in so far as they are themselves acted upon by like forces, must retain their likeness amid surrounding change. Thus it follows that —

"In an aggregate containing two or more orders of mixed units, those of the same order will be moved in the same way, and in a way that differs from that in which units of other orders are moved, the respective orders must segregate. A group of like things on which are impressed motions that are alike in amount and direction, must be transferred as a group to another place, and if they are mingled with some group of other things, on which the motions impressed are like each other, but unlike those of the first group in amount or direction or both, these other things must be transferred as a group to some other place — the mixed units must undergo a simultaneous selection and separation.

"In further elucidation of this process, it will be well here to set down a few instances in which we may see that, other things equal, the definiteness of the separation is in proportion to the definiteness of the difference between the units. Take a handful of any pounded substance, containing fragments of all sizes; and let it fall to the ground while a gentle breeze is blowing. The large fragments will be collected together on the ground almost immediately under the hand; somewhat smaller fragments will be carried a little to the leeward; still smaller ones a little farther; and those minute particles which we call dust, will be drifted a long way before they reach the earth: that is, the integration is indefinite where the difference among the fragments is indefinite, though the divergence is greatest where the difference is greatest. If, again, the handful be made up of quite distinct orders of units — as pebbles, coarse sand, and dust — these will, under like conditions, be segregated with comparative definiteness: the pebbles will drop almost vertically; the sand will fall in an inclined direction, and deposit itself within a tolerably circumscribed space beyond the pebbles; while the dust will be blown almost horizontally to a great distance. A case in which another kind of force comes into play, will still better illustrate this truth. Through a mixed aggregate of soluble and insoluble substances, let water slowly percolate. There will in the first place be a distinct parting of the substances that are the most widely contrasted in their relations to the acting forces: the soluble will be carried away; the insoluble will remain behind. Further, some separation, though a less definite one, will be effected among the soluble substances; since the first part of the current will remove the most soluble substances in the largest amounts, and after these have been all dissolved, the current will still continue to bring out the remaining less soluble substances. Even the undissolved matters will have simultaneously undergone a certain segregation; for the percolating fluid will carry down the minute fragments from among the large ones, and will deposit those of small specific gravity in one place, and those of great specific gravity in another."[1]

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[1] First Principles, Section 156.

This principle of segregation Mr. Spencer sums up in the abstract formula, "In the actions and reactions of force and matter, an unlikeness in either of the factors necessitates an unlikeness in the effects; and in the absence of unlikeness in either of the factors, the effects must be alike."[1]

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[1] First Principles, Section 163.

We now have two principles which show that change works in two directions. That is, with an integration of matter we have one factor leading to differentiation of parts and another leading to segregation of parts, or their determination. In Mr. Spencer's words, an indefinite homogeneity must become a definite heterogeneity.

A summary or epitome of his theory makes very difficult and abstruse reading, although Mr. Spencer's own account of it is both interesting and easily understood. However, we may gather all the foregoing into the following brief and simple statements. No object can remain always the same. It must change; and when it does do so, it must change along one of two lines, one of which is called evolution. In evolution, the structure of the object becomes more complicated, and its different parts become more definitely marked out and unified. Or technically expressed, the homogeneous is unstable, and the resulting effects tend to multiply, and in this process like elements or elements affected alike tend to segregate.

(*d*) Evolution leads to an equilibrium, and this in turn to a Dissolution.

But all change is not evolution; there is the other line along which it can take place. This, Mr. Spencer calls dissolution. In dissolution the object becomes less complicated, and its parts tend to scatter. It loses its structure. That is, any aggregate of matter must be in one of three conditions that exhaust the possibilities. Its parts must be coming together, or separating, or they must be in a temporary state of equilibrium. To quote again from Höffding: —

"Evolution must (on the supposition, of course, that it will not be interrupted from without) necessarily lead to a state of equilibrium, in which concentration as well as differentiation will have reached its zenith. In the development of man, this state is identical with the highest perfection and blessedness, and consists in the greatest possible harmony between man and nature, and between man and man. But since external influences are unceasingly operating, this state of equilibrium must in course of time come to an end. Evolution is succeeded by dissolution when there is no longer sufficient energy to maintain, in the face of persistent disturbances, a harmony between concentration and differentiation. Passing through the different stages of dissolution, we finally arrive at a new chaos. Just as, within the circle of our experience, processes of evolution are unceasingly going forward, so there are unceasing processes of dissolution of larger and smaller wholes. Even if our solar system — and all other solar systems — carry within themselves, as some authorities believe, the seeds of dissolution, the possibility of the formation of new systems is not excluded, for there will always be external forces to start the process of evolution again. All motion is rhythmical; hence development and dissolution will alternate with one another *ad infinitum*."[1]

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[1] Section 169.

In short, Mr. Spencer gives us the following universal law of change. Every object, whether it be a chemical atom, a stone, a living being, a nation, a planet, or a solar system, is built up by a process of integration, or evolution, then it reaches a stage in which evolution ceases, a stage of equilibrium, and finally it disintegrates or enters upon a stage of dissolution. This dissolution, too, has an ending, reaches an equilibrium, and then there starts once more a new process of evolution. Thus there goes on in nature, rhythmically, a passing back and forth from a state of integration to one of disintegration, and from one of disintegration again to one of integration.

Mr. Spencer does not always make it clear whether or

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[1] Höffding, History of Modern Philosophy, Vol. II, pp. 470–471.

A criticism of Spencer's theory.

not he means that the world as a whole has undergone or does undergo such a process of evolution and dissolution as he describes. But doubtless (as several passages show) he applies his law only to the finite. Of course with the conclusions in mind that we have previously drawn, his theory would at once become an absurdity if applied to the world as a totality. If evolution be a loss of motion, this cannot mean a loss of motion out of the universe. Clearly the doctrine of the conservation of mass and motion alone would show that the universe as a whole cannot lose motion. Therefore the universe as a whole cannot integrate its matter with a concomitant loss of motion. A solar system can lose its motion; it can give up to outside space anything you will, but how can we talk of the universe doing so? We must have a surrounding world into which to cast, as it were, the chips from our carpenter's bench. Likewise dissolution is an absorption of motion, but clearly the universe cannot absorb motion. In short, we can talk of sidereal or solar evolution, of human or social evolution, of the evolution of the chemical atom, but let us give up, once for all, talking about world-evolution.

Evolution not applicable to the world as a whole.

At the same time, there is one objection we must raise without necessarily denying the truth of Spencer's theory. Mental evolution cannot be described as an integration of matter and a dissipation of motion! As far as science informs us, mental evolution takes place in connection with brain evolution, and quite in uniformity with it. So mental evolution can, perhaps, be shown to go on in a course quite uniform with that of material evolution. This objection against Mr. Spencer's Theory of Evolution throws at once a different light upon it. *It is a theory of mechanical evolution, and only of mechanical evolution.* However, this is not a fundamental objection to it. In our study of the philosophy of nature, and of the philosophy of mind, we found that the mechanical theory

It is a theory only of mechanical evolution.

To apply the theory to other changes we must coördinate these with the mechanical.

must ultimately form the basis of all our interpretation of the material and mental worlds. The world of the secondary qualities and of mental life must be coördinated with the world of material atoms and its mechanical laws. Ultimately, then, a law of evolution of the mechanical world does hold universally. It is this fundamental truth that enables Spencer to draw so readily illustrations of his laws from chemistry, physiology, psychology, and sociology.

But this at once brings up the question whether or not we can have a *similar* theory of evolution of the secondary qualities and of mental life. We reply: If the analysis of our problems in earlier chapters hold true, then we cannot have any such theory. The ultimate permanent element in all changes, we had to seek in the material, atomic world. We could not find in the secondary qualities and mind those permanent elements that such a theory requires us to presuppose. The ultimate permanent elements for our interpretation must be obtained by coördinating the mechanical world with the world of quality and mind, that is, by finding the laws of coexistence holding between them.[1]

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[1] Many will find objections to using the term *evolution* at all for Mr. Spencer's theory. This question, however, we feel belongs to a treatise to discuss. They would prefer the term *involution.*

Evolution for Spencer means an integration of matter, and dissolution a disintegration. If we confine the argument to one sense of the term, Spencer can be justified, for evolution means the coming into being of a new structure out of elements already in existence. It is opposed to the creation of new elements; clearly, then, in this sense, it is a theory holding of a mechanical atomic world. However, if we mean by evolution the development of an object from within, like the development of a bud into a rose, an egg into a chick, then Spencer's theory is not one of evolution. Still all this is a quarrel about terms. However, should it be made a quarrel about principles, then the foregoing chapters are clearly on Mr. Spencer's side. In the philosophy of nature we maintained that science can never accept ultimately any change as a development from within the object but must analyze the object into atoms

From all this we must see at once that the doctrine of evolution in no way sets aside special creation. Special creation, or the coming into being of new elements (the secondary qualities and mental states) is constantly taking place.

As the result of our study of the theory of evolution, we may sum up the principles of evolution as follows:—

The Principles of Evolution.

1. The law of evolution is applicable only to a part of the universe, not to the universe as a totality. Evolution involves the action and reaction of causes from without, and as such affords a wrong picture of the universe, for all its action must be immanent, or from within.

2. Likewise, the law of evolution is inapplicable to any part of the world in the sum-total of its reality. This statement only repeats a principle that we discussed in the philosophy of nature. Any part of reality is never interpreted in the sum-total of its elements. Any part is of infinite complexity; and therefore when our minds interpret it, they do so now from this point of view and now from that, now neglecting these elements and now those.

3. In the law of evolution we interpret objects as made up of parts that we accept for the time being as atoms.

obeying mechanical laws. This alone is the final stage of analysis. Hence the assertion of the spontaneous development of any object or the development (evolution) of it from within is but a confession of ignorance. The egg is acted upon by forces from without, *e.g.*, the heat of the mother's body; but of course its structure is the chief factor in its development. Still the part this structure plays becomes itself a problem for further analysis, and in this analysis we seek for simple elements or atoms whose action we can interpret according to mechanical laws.

Hence this sense of evolution (development from within) is not to be accepted in applying the term to any object, for all are ultimately to be interpreted mechanically. It may, however, be applied in a limited sense to the secondary qualities and to mind, for we have in them just such spontaneous change that we have called creation; and again it may be applied without this limitation to the world at large, for here all action must be thought of both as spontaneous and as coming from within.

In short, the law of evolution is a law of the separation and recombination of atoms. If we speak of the evolution of our solar system, we clearly mean to determine how certain bodies, cosmic dust, have so distributed themselves that we have the solar system as a result. A similar truth could be shown to hold concerning any other example we might wish to bring forward. Of course, each one of these atoms may be in itself indefinitely complex, and likewise, their redistribution may involve the creation of many qualities that the evolving object previously lacked, *e.g.*, the change of color as a star evolves.

Again, in the law of evolution we strive to interpret the new as only a redistribution of previously existing elements. The law of evolution strives thus to deny special creation, but it can do so only in part. Special creation is ever taking place; and all that the law of evolution can here assert in opposition holds only against such special creation as would conflict with the principles of conservation (such as those of mass and motion). The basis then of the law of evolution is the atomic system and the principles of conservation; and on this basis the evolutionist is called upon to show the law in accordance with which any system of atoms will redistribute themselves.

4. The principles that govern the distribution of matter can be deduced from the axioms and deductions of mechanics. If we follow Spencer, they are: (*a*) The Instability of the Homogeneous; (*b*) The Multiplication of Effects; (*c*) The Principle of Segregation; (*d*) The Ultimate Necessity of an Equilibrium; (*e*) The Necessity of Dissolution after Integration.

CHAPTER XXXIV

TELEOLOGY[1]

The world, an eternal process of change.

WE have learned that the course of nature is eternal. We can ascribe to it no beginning, nor can we in any way predicate of it an ending. It is an ever-changing process, in which the work of creation goes on unceasingly. The character of this work, that is, the order in which it takes place, we can know only in so far as we see it manifested in the life of the individual thing or system of things. But the life of the world as a whole we cannot thus know. Each part comes gradually into being, lives its span of life, and then goes back into the darkness whence it came. Each part does so, whether it be the insect whose life is but a day, the man whose years are threescore and ten, the empire that holds its sway for a thousand years, or the solar system whose duration is numbered in millions of centuries. But the world of which they are, has neither evolution or dissolution; the lifetime of a sidereal system, yes, a million million times that lifetime, is to it but "as yesterday when it is past, and as a watch in the night."

Creation is not an act after the fashion of human deeds.

Can we tell the end or purpose of that world, the goal whither all things tend? Are we to look for some ultimate stage in creation that will mark the wherefore of all that has been before? Can we say for what purpose the creator has brought our world into existence?

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[1] *Parallel Reading.*

Paulsen, Introduction, Book I, Chapter II, Section 3.

Sigwart, Kleine Schriften, 2d ed., Freiburg, 1889. Der Kampf gegen den Zweck.

Ward, Naturalism and Agnosticism, Vol. II, Lecture XIX.

Cf. Eisler, Philosophisches Wörterbuch, under the term "Teleologie"; also, Baldwin's Dictionary of Philosophy.

Clearly we talk but as children when we tell of God forming plans after the fashion of men. Clearly we talk but as children when we think of any conceivable stage of the world as the final consummation of any such plan. The creator is not a man, nor does creation proceed after the fashion of human deeds. When we construct an object or perform an action we are but links in that unending chain of causation,—the world-process. Our thoughts and their plans are likewise just such links. They are not a true beginning of the chain, or series, except as looked at from our finite human point of view. We talk of our handiwork as though our plans had created it; whereas they were but an infinitesimal part of that stage in the world's history to which our handiwork belongs, and that stage likewise is but an infinitesimal part of the series that went before it. Hence we are talking but as children when we ascribe a result to any one preceding event. In its full nature all the world has played a part in everything that is. Its being and nature are determined by all before it, and we may add with equal surety even all that will follow after it.

Creation has no consummation, or final event.

The creator does not work then after the fashion of men. It would be truer to say that all eternity is for him but one present moment, for the world in all its totality enters into every part of the world and into every moment of its existence. To know any one part and any one time is to know its relationship to all parts and to all times; for singularism has taught us that we cannot separate one part from any other part, or one time from any other time. Such separations are the abstractions of our thought. The reality is one system, one ultimate thing. Therefore no time and no part are to be singled out and regarded as a consummation, except, if you will, in the same partial way you and I single out other events.

Then, too, a world without beginning or ending cannot be the outcome of plans that form the beginning of a series, nor can it have an ending or final stage, that is, the consummation of some plan. As we know the world, there is no finality to it in the sense of consummation, nay, rather, to be in one stage means but the passing from that stage to the next. Any one moment, therefore, is just as much and just as little a consummation as any other.

But from another point must we not maintain a purpose to be revealed in creation? Its marvellous adaptations cannot be the result of chance.

But, it will be objected, do you mean to say that mere chance has brought into existence the marvellous adaptations we see about us? Take our earth: how wonderfully it is adapted to be the home of life, of plant, beast, and man, and finally of society and civilization! Is its relation to the sun, the source of light and heat, is the chemical structure of its crust, are its air and its rainfall, but the results of chance? Are those wonderful adaptations found in all forms of life to feed and protect the individual and to bring about the procreation and preservation of the species, are they mere chance?

Think of the marvellous anatomical structures from those in the lowest types of life all the way up to those in man. Ponder over the human body as a mechanism, the organs within, with each its definite function to perform, — the lungs, the heart, the arteries, the veins, the digestive tract, the liver, the organs of secretion and excretion. Finally, take the nervous system and the organs of sense, — the eye, the ear, and the other organs. Think of the adaptation to environment revealed in the habits and instincts of every animal. Can you dare to find in all this wonderful, awful, adaptation, aught but the workmanship of an infinite intelligence planning what he performs? Having in what man produces an example of what mind has wrought, must we not argue from analogy to a mind infinitely powerful, wise, and perfect, as the only possible explanation of the world? Can these marvellous adaptations and organisms that we find in nature be the result of blind chance? To say so were, as we said before, to maintain an absurdity a thousand times greater than to say, stone-quarries of themselves change into cathedrals and iron mines into locomotives and steam-ships.

Reply: (a) Our opponent misuses the term, chance;

What shall we say in reply? First, we shall call our opponent to account for using the word *chance*. Who said the world was the result of chance; and in fact, what do you mean by chance? From our human point of view there is chance; but did you and I know fully the laws and order of things, we should set aside forever the use of this word. You and I, who cannot reckon before the die is cast how it will lie, talk of chance. It is a matter of chance whether or not aces come or sixes; but if we have the die so loaded that aces will come every time, will double aces then be chance? But is one case any the less determined by the physical laws operating in the throw than is the other? Clearly, not at all. The only difference is that you and I are able to predict the result in the one case, whereas we are not able to do so in the other. Chance then means what cannot be predicted because of our ignorance of the conditions. Were our knowledge greater, what chance event might we not predict? In short, the degree of chance is but relative to our information.

(b) The presupposition of a mind does not ultimately explain adaptations;

But, again, to urge that it is inconceivable that such adaptations should arise without a mind directing the causal process is likewise absurd. It is absurd, for we cannot show even in the matters of everyday life how mind directs the course of events or even that mind does do so. Our study of the philosophy of mind taught us that the fundamental explanation of all mental action has to be found in terms of blind mechanical forces. Nervous heredity and nervous habit are the terms in which psychology has to explain the succession of our mental states. When I propose to walk across the room, pick up a book, and return to my desk, why does my proposal result in the actual accomplishment of the deed proposed? All we can say is, that it does do so. It is one of the laws of nature, that our thoughts are followed by actions. To explain why a given thought should result in a given action we have to appeal to the purely physical laws of nervous mechanism. Thus we explain human handiwork only after the same law of causation that we interpret any other series of events. By actual experience we have learned the connection between human ideals, or thoughts, and human actions; therefore certain results found only in human handiwork we ascribe always to human ends as the cause. But in the last analysis a purely mechanical explanation would have explained the result just as adequately. It would have given just as much information, for it, too, would have told us the causal relations. When psychology explains human deeds teleologically, no new principle of causation is brought in. If this be not true, then our whole conclusion concerning the philosophy of mind is false.

(c) But more than this, creation is not analogous to human deeds, nor would a world-mind be analogous to a human mind.

But all this aside, will our opponent's position stand as an argument from analogy? Are the adaptations in nature really analogous to the adaptations of human handiwork? We know in a general way how both sets of adaptations arise. In one case, minds act through human bodies and direct the forces stored up in the nerves and muscles of those bodies. In the other case there is every reason to believe that no body directed by a mind analogous to the human mind has been at work. In the case of human workmanship the mind and the body work apart from the handiwork itself. The shoemaker and the shoes, the watchmaker and the watch, are two very different things. Hence, in the case of nature, if nature is the work of a power analogous to man, there must be some outside power both spiritual and bodily standing by nature and working over it and handling it as does a shoemaker his shoe. What a monstrous theory! Is not every particle of evidence against such a view?

If a controlling mind works and directs nature, it must do so from within, not from without. From without it would at once be an exception to the law of the conservation of energy. Hence, if the adaptations of nature are analogous to human deeds, they are at the most analogous only to the control the mind has on the body, for this is from within. Then we might suppose that nature is related to some world-mind as our body is related to our mind. But will this analogy really hold? It certainly will not. Our life is amid a surrounding world, and the office our mind performs is to adapt us to that world. But the life of such a universal spirit would not be like ours. There would be no forces without its body with which to cope. Its life would be one led entirely within the body. Now, the purely internal activities of our body, are just the ones that are least teleological, as far as the direction of human thought is concerned. The beating of the heart, the breathing, the digestion, and the other physiological processes of the body, go on with little thought or direction from our minds; and if it were not for the changing conditions of the daily environment, we could get along very well without any intelligence whatever. In fact, where we can substitute for carefully planned and carefully wrought actions, habits, we are constantly doing so. A permanent form of adjustment to environment, such as a habit is, is just the type of existence toward which we all tend; and habits are, when thoroughly established, almost as mechanical as breathing. In short, only the variety of environment and its constant changes save us from becoming mere machines. If evolution tells us aught about the origin of the human mind, it tells us that the office for which our mind has been selected by nature is just adaptation to the external world. Now a world-spirit would therein lead a very different life from our own. Just to perform that office that you and I do with least thought, we argue would require mind in nature. No, the office of such a world-spirit in nature would not be analogous to the work our minds perform.

We must then conclude that this whole type of teleology, which we may call anthropomorphic teleology, breaks down, no matter from what point we may view it.

Yet a very true meaning still remains for Teleology. The laws of causation do not exhaust the story of reality.

But must we therefore set aside all teleology; is there not another meaning of the word that does apply to the world in its eternal process of creation? There may be no definite states in its countless changes that are to be regarded as the consummations of the creator's plans. Such a doctrine we have set aside. The assertion of a universal end whither all creation tends is a theory that involves us in absurdity.

Yet, on the other hand, it would be no less absurd to teach that we have told all there is to say, that we have exhausted reality, when we have given the laws of nature or the causal laws of order in which nature's changes take place. The mechanical story of the world simply tells us that *a* is followed by *b*, *c* by *d*, and *e* by *f*; and therefore when *a* and *c* and *e* did occur, *b* and *d* and *f* followed. Thus, if we assume the existence of the nebula of cosmic dust that we believe formed the primitive state of our solar system, and the validity of the laws of mechanics, including those of gravitation, we have to grant that there will exist in the course of time a solar system like our own. All this is true; but is it the whole truth? All that the mechanical theory tells us is that what did happen obeyed certain laws. It tells us, given *a* you will have *b* as an effect; but it does not tell the story why *a* is given. Why did just the nebula of cosmic dust exist that did constitute the primitive state of the solar system? You may reply, because *x* preceded, and *x* is always followed by *y*. Of course such answers would involve us in the infinite series pushing backward from state to state for eternity. But this was not our question. Our question is: Why is *b* and not *c* the result of *a*, or why is *y* and not *z* the result of *x*? To this your mechanical theory can answer nothing. Hence the question arises: Can we say aught why the world is such as it is; why the uniformities of nature are just what they are; why a nebula of star-dust should be of such a character that in time it developed into a solar system, an earth, and the living organisms on that earth with all their wonderful adaptations, why part of creation took the form of humanity, society, civilization, and culture?

As our discussion of creation has shown us, we have no means of answering this question. In fact, the only meaning we can give to the word "why" is that it asks for a cause. Has then our "why" any meaning? Yes, it is simply a protest against regarding the mechanics of nature as anything but an abstraction. The reality is infinitely more than a mere abstract network of law. The reality is that which obeys the law, but it is more than the law. It is true that the world obeys laws, and that the only way in which we can explain any part or event of nature is to give the law it obeys. But reality is more than the answer to this "why." Reality is the organism, it is the adaptation, it is the star-dust that has the future before it to be a living man or woman, animal or plant. In short, we have the fact that the world is such, that it does in the course of creation have these wonderful organisms and adaptations. That fact is beyond dispute. That fact is not described in the mechanical story of reality. It is to that fact that the term *teleology* may and should be used to call attention. Reality is in part just these wonderful adaptations. They belong to it; they are of it.

The world and all it is belongs to it and its nature and has done so from all eternity. To this fact the term Teleology refers. The world is an

But why should we call this doctrine a teleology? Just because all these things — man, animals, plants, solar systems, society — were not always here. They came into being; they were created. From all eternity the universe was such that they in time had to be. The past is the forerunner of the present and future, and the present and future are the true and only possible successors of the past. No stage of the world in its full reality can be separated from the other stages. Past, present, and future eternal present determined by the future as well as by the past.

are necessarily interlocked as stages of one eternal reality, the universe. The past determines the future; but we can say just as truly, the future determined the past. In this sense the world is an eternal present, and the totality of its being is involved in every moment and in every creature of every moment. Each is what it is because of all the rest; but all the rest, we might just as well say, is what it is because of the humblest of God's creatures. An infinite intelligence could have seen in what was, all that is, and in all that is, all that was and will be.

Conclusion.

Thus teleology points out the wonderful adaptations in reality, and bids us remember that from eternity to eternity in all stages of the world, these had to be, were determined to be. They are not something over and above the world, for all belongs to the world. They are in that sense not mere chance accompaniments; but they are of the very blood and bone of reality itself, and through the causal laws are so from all eternity to all eternity. In this way teleology attempts to combine in one picture the concrete reality and the abstractions taught by science as holding of reality, — the concrete thing with the law it obeys. We might say, it views the thing in the light of its universal history. Of course our finite imaginations afford us but the most inadequate picture of this world-process that our words imply; but still the finite wonders and beauties of nature we can perceive, and no theory dare declare them to be other than the creator's and his manifestation of himself.

Yet there is an even deeper meaning than this to teleology; but with it we pass from metaphysics and science over to religion. This deeper meaning asserts that the universe meets ultimately the needs of our will and its ideals, that the universe is itself ideal. But the discussion of this religious interpretation of reality and of its validity we must put off till a later chapter.

CHAPTER XXXV

CONCLUSION

Metaphysics leads to yet deeper problems.

We have now concluded our study of metaphysics. We have drawn often quite settled conclusions, but frequently we have been led by our reflection to problems we had to let pass by unsolved. In so doing we have pointed to a possible continuation of our reflection upon problems even more truly fundamental than those we were solving.

The new problems.

We found the true character of the atomic theory to be quite different from what we ordinarily suppose. The interpretation of nature and also of mind is a process of dissecting; and after we have torn to pieces, we are liable to deceive ourselves by concluding that the pieces are the reality. But the results of scientific analysis give us not the concrete reality, but abstractions, yet of course abstractions that have a meaning for reality. They describe reality, but each one only in its own one-sided way. Reality is always infinitely more than any one of these abstractions.

Reality concrete, not abstract. But why is science abstract?

Yet, on the other hand, we felt that we had to follow this line of analysis and abstraction though it took us away from the concrete reality. But why do we have to do so? Why is science a system of abstractions? To learn this we shall have to learn what knowledge is and why knowledge must take just this form.

Again, how can we know that laws hold universally?

Again, we have maintained throughout that the laws which science discovers hold of reality universally. Still, at the same time, nothing could be clearer than our conclusion: Science can interpret reality only in part and not as a totality. Surely the world in its infinite processes can never be under our direct study; yet somehow we seem ready to assert that what is true of one part is true of all, for we interpret nature as an infinite system of atoms, each of which obeys the laws of conservation and causation. By what right have we done this? No direct observation of nature could give us sufficient data for such stupendous conclusions. How can we then be sure that these principles of science have universal validity? Here is certainly a new problem upon which we should reflect; and as we shall see, it is a problem that will draw us into the study of knowledge and its validity.

Is knowledge valid?

Here we are speaking of the validity of knowledge. Yes, science proceeds to interpret the world; but are we sure that such a thing as a valid interpretation is possible? May we not even go so far, as thorough thinkers must we not go so far, as to ask: Is a knowledge of the world possible? Is science really what it claims to be? Is it trustworthy? It tells us of the future. How, after all, can it foretell what is to be? It tells us what has been; but what has been will never return again. How, then, can we be sure what it was?

Have we not omitted Religion, Morality, and Art? What place are we to give them?

Clearly, our study is not complete, for it leaves us so many fundamental questions. Of these, perhaps, no one appeals more to us than questions of religion and morality, for what becomes of religion and morality if the world be such as our philosophical study of science indicates that it must be? Are there other problems, purely religious ones, over and above science and her teachings, or is religion set aside by scientific results as worthless vagary? Where does religion belong in our endeavor to know what the world is? Where does ethics belong? Where does art belong?

The longer we think the more do we find for further thought, and thus we end our study of metaphysics with many questions still unanswered.

But though our study is far from complete, still we have reached some very important results. Some of these results have already been indicated in our conclusion.

Our results.

Singularism.

The world as seen by metaphysics is a world of one infinite eternal substance. This means that in the act of dividing the world into parts we can nowhere make an absolute division. It means that there exists between each and every element of the world a relationship, so that a change in one element brings with it changes in all. It means that the world is one organic system.

The principles of causation and conservation.

Further, we found that the world undergoes all its changes in accordance with fixed laws of causation. The law of causation is universal. But amid the changes not only do laws of causation remain eternally fixed, but also certain elements of the changing events themselves — their ultimate spatial relationships, their mass and motion.

Dualism

Again, the world, as revealed to us, presents two sides that resist all identification, — the world of nature and that of mental life. The two are distinct, — the one spatial, the other non-spatial. Yet this dualism is not an absolute one. The two elements of the world are distinct; but still substantially, or causally, they are one, for there is complete and necessary uniformity between them, revealing their fundamental unity.

The physical is only one part of the story of reality.

Finally, we had to oppose all attempts to identify the secondary qualities with the fundamental characteristics of matter. We did give full support to the mechanical theory of nature, and to it even when applied to psychology. Yet this support in no way means to deny the reality of mental states or of secondary qualities. It means that the mechanical theory holds of all the world, but is still only a very small part of the whole story of reality. Besides the story of the mechanical processes we must tell also the story of every other distinct element of the world. Each truly exists, and the complete story must therefore include the mental world and also the world of secondary qualities.

But what is that concrete reality we interpret in abstractions?

But before passing to more truly fundamental problems, we must try to say something of the concrete reality which science interprets only in abstract terms — this reality of which a mechanical atomic world-order does hold, but which is itself infinitely more than merely mechanical. Can we not get a picture of the throbbing, living concrete as opposed to the dead, dried-up, changeless abstract? Some have compared it to our own life, even to our mental life, and especially to our wills. They have said that the world presents the same picture as our spiritual life. It has all the elements of spontaneous change. The new is constantly taking the place of the old, the old changing of itself into the new. This doctrine that all is will, is called *Voluntarism.*

Voluntarism.

The fact referred to admitted; but objection to the term Voluntarism.

In reply to this view, we admit the facts referred to, but hesitate to call them will. The world in the concrete is truly one analogous to our wills. Creation is ever taking place. Spontaneity describes it as does no other term. This picture of a living, throbbing reality we have tried to impress upon the reader. But it is dangerous to use terms applied in a narrower sense to our mind and to elements of our mental life in this much broader sense. The world is will, if you choose so to call it; but it is will in a broader sense than psychology uses that term. The world is alive, but it is alive in a broader sense than biology uses the term. Voluntarism and hylozoism are right, but the terms are nevertheless very misleading ones. We grant the analogy between reality and spirit, between reality and life, but no more. The world contains life and it contains spirit. It creates both. There can be no contradiction between it on the one hand and life and will on the other.

We may then conclude: *The world is the scene of an infinite variety of elements undergoing perpetual and spontaneous change, or creation of the new, yet in so doing retaining forever as permanent elements certain fundamental* *relations, or laws; and through these relations, or laws, every element is knit together, some near, some far, with every other element, thus forming a unity wherein all are members one of another.* Such is the world revealed by metaphysics as we turn to our deeper problem, — the problem of knowledge.

PART TWO

THE THEORY OF KNOWLEDGE

(The World as the Object of Knowledge)

1. The Nature of Knowledge
2. The Validity of Knowledge
3. The World as presupposed by Knowledge
4. The Manifold Interpretation of the World

I. THE NATURE OF KNOWLEDGE

CHAPTER XXXVI

INTRODUCTORY[1]

The Problems of Knowledge.

We have gone through one great part of the field of our reflective study, only to find that new and more truly fundamental problems meet us everywhere. We have thought about the world that science interprets but have not answered the deeper question: What is science itself?

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[1] *Literature on the Theory of Knowledge.*

The student who desires to begin a serious study of epistemology is advised to read carefully The Theory of Knowledge, by L. T. Hobhouse. London, 1896. This work treats of many topics belonging rather to logic; but the student will find in it a clear presentation of important problems and good means of becoming acquainted with further literature. If he desire to study logic along with his study of epistemology, he will do well to master Sigwart's great work: Logic, by Dr. Christoph Sigwart, Translated by Helen Dendy. 2 Vols. London, 1895. [Logik, von Dr. Christoph Sigwart, zweite Auflage. Freiburg i. B., 1889 and 1893.] This book, too, will introduce him to further literature.

But he will soon find that a knowledge of the history of the problems is essential; and for this, much time would be needed. Such a study would require the careful reading, in order, of Locke's Essay on the Human Understanding; Berkeley's Principles of Human Knowledge; Hume's Treatise of Human Nature, Book I (of the Understanding); or Hume's Enquiry concerning Human Understanding. Next he will need to undertake the hard task of carefully studying Kant's Critique of Pure Reason.

This reading may, however, be greatly shortened for him by choosing, instead of the complete works, the following editions of selections: —

Selections from Berkeley, by A. C. Fraser. Oxford.

In Series of Modern Philosophers, edited by E. H. Sneath. Henry Holt & Co.

(1) Locke, by J. E. Russell.

or that most abstract and general of all questions: What ultimate truths about the world are assumed in our very attempt to know it? We have talked somewhat about the ideals and the task of science; but we have not determined whether or not these very ideals are more than vain air-castles built by man's ambition but quite beyond his realization; whether or not science can accomplish the very task she claims to be doing. We have not determined: What are the powers and the limits of knowledge?

The problem raised by the Senses.

You and I depend upon our minds to know this world, and that means upon our organs of perception and upon our ability to reorganize the data that we get by perception into the system that we call knowledge. To know, we are necessarily dependent upon our organs of sense, for without them all would be to us a perfect blank. Rob us of our eyes, our ears, our sense of touch, how little should we know of the world in which we live. But may we not ask: Are these very instruments of perception to be trusted? The philosophers of old used to doubt it and urged all manner of evidence to show how untrustworthy the senses are. Nowadays we have little patience with any one that seriously urges such evi-

(2) Hume, by H. A. Aikins.

For Kant. Prof. John Watson's Selections from Kant.

For Histories of Philosophy, cf. Note to Chapter LVII.

The general student is referred for further reading to Paulsen's Introduction to Philosophy, to Professor Watson's An Outline of Philosophy, and to John Caird's An Introduction to the Philosophy of Religion. New edition. Glasgow, 1901.

Among important writers on the Theory of Knowledge are the following: —

Bradley, Appearance and Reality. 2d ed. London and New York, 1897.

Riehl, Der philosophische Kriticismus und seine Bedeutung für die positive Wissenschaft. Leipzig. 1876–1887.

Ormond, Foundations of Knowledge. London and New York, 1900.

Sir Wm. Hamilton, Lectures on Metaphysics.

W. Schuppe. Erkenntnisstheoretische Logik. Bonn, 1878.

dence; but then, are we justified in so doing? Did not the ancient thinkers find a real problem? Was it a wholly foolish one? Evidently not. Our senses do certainly deceive us now and then. Not merely do we all have dreams and illusions, but some of us are color-blind. Then again, think how one-sided our whole sensorial system is. Think how many objects in the world without wholly escape our perception. They are hidden from our view, or they are too small or too large to be properly seen. Who of us ever saw the earth as a whole? Who has seen the chemical atoms? Who has seen the imponderable bodies in surrounding space? Now, if there are so many things whose existence we only infer but never perceive, how many, perhaps infinitely many, things are there about us whose very existence even escapes our knowledge.

The problem of knowing a world transcending our minds.

But there are many other questions besides that trouble the philosopher. You and I perceive the objects about us and so know them. But why do we perceive them? Clearly because they make impressions upon our brains through our organs of sense, and then give rise to mental states in our minds. May we not therefore rightly ask,

Among the treatises on logic reference should be made to the following: —

Jevons, The Principles of Science. 2d ed. London, 1877.

Venn, The Principles of Empirical or Inductive Logic. London, 1889.

J. S. Mill, A System of Logic. Ratiocinative and Inductive. London, 1843. 9th ed. 1875.

Herm. Lotze, Logik. 2d ed. 1880. English translation, ed. by B. Bosanquet. 2 vols. 2d ed. London, 1888.

Wilhelm Wundt, Logik. Bd. I. Erkenntnisslehre. 2d ed. Bd. II. Methodenlehre. 2d ed. Stuttgart. 1893–1894.

Benno Erdmann, Logik. I. Elementarlehre. Halle a. S, 1892.

F. H. Bradley, The Principles of Logic. London, 1883.

H. A. Aikins, The Principles of Logic. New York, 1902.

Historical Note. Though the Theory of Knowledge is as old as philosophy, still it does not become a differentiated discipline till the eighteenth century. It became so above all in Kant's Critique of Pure Reason and to a less extent in the previous writers, — Locke, Berkeley, and Hume. Cf. Chapter LVII.

whether or not our minds have before them merely mental states and never the real world without our minds; for this world only gives rise to our perceptions and is not to be identified with the perceptions themselves. Thus the image of this book now in your mind is not the book itself. If you shut your eyes, the image passes away, but the book does not. Then, again, if you walk away from the book, say you are standing in a long hallway, the book keeps looking smaller and smaller as you proceed, till finally it becomes a mere speck in the distance. Clearly, the book is not like the little dark object you see two hundred feet away. Clearly, what you see is the book as it appears to you, not the book as it is. Thus we may raise the startling question: Is the world not one thing, and what you and I perceive quite a different thing? Do we really perceive the world, or is it only the world as it appears to our minds that we perceive, a sort of reflection of the world? The world is without our minds, our perceptions are within our minds, or, as the technical phrase runs, the world is objective and our thoughts are subjective. Can we know an objective world, or are we limited to the revelations of our own minds, to the impressions the objective world makes upon our minds? And then, do we know whether or not the objective world is really like the world our senses cause us to perceive?

The problem: Is thought a valid process?

But deeper problems still remain to trouble us. We may bring into question not only our source of information about the world but also the process by which we transform the data of sense into knowledge. Do our minds in reasoning or drawing inferences about the world go through a process that can be accepted as thoroughly trustworthy? Do they conflict with the very laws we accept as the axioms of rational thinking? Our study will show us that in interpreting the world we presuppose many things about it; that is, take many thoughts for granted. Sometimes our minds seem to presuppose premises we should like to question — premises that never get the justification fairness would demand. Or, again, sometimes our reason seems to go outside of its evidence and to draw conclusions about an objective world never actually given us in the data of sense.

The problem of the manifold interpretation of reality.

Then, too, there remains one other most important problem. We have been talking all along about science. Are there not other fields of knowledge than science? There are, indeed. We may say briefly: There are three other great fields of knowledge, — religion, art, and morality. Now may not these also be called into question; and what is more, may not and do not controversies exist between some of them? In fact, we are all familiar with the phrase, "The warfare between science and religion." What does this warfare mean? Does it mean that science alone has the right to be called knowledge? that there is no legitimate place for religion? Why should there be a warfare? Are both valid, but different, answers to the same question? Or are they different answers to different questions? In short, is science the only true interpretation of the world, or are these other three partners in the great work of knowledge?

There thus result four classes of problems.

We thus find four great classes of problems yet to be dealt with: first, What is the nature of knowledge? secondly, What establishes its validity? thirdly, What are its ultimate premises? and fourthly, Are there several ultimate ways of interpreting reality?

They form the subject-matter of the Theory of Knowledge.

Now the science or discipline of philosophy that undertakes to answer these four questions is called the Theory of Knowledge, or Epistemology. We may then say that epistemology is the science of knowledge in general, that is, of knowledge considered apart from any special instance of knowledge. We may express this thought less abstractly and more clearly thus: It is the science of those problems of knowledge that are present in all possible examples of interpretation, be they science, art, religion, or any other form. Thus, *the Theory of Knowledge is the science of knowledge in general as the interpreter of reality.* This science forms the subject-matter of our second part.

A restatement of its problems.

But can we not likewise state more definitely the problems such a science is called upon to solve? The definition will help us to do so. First, knowledge claims to be an interpreter, therefore we must ask: What is it to interpret? What is the nature of interpretation? But further, knowledge, or interpretation, involves a claim, for all knowledge claims to be true; in fact, it is in all the world the one thing that we speak of as true or false. It assumes a responsibility, and on this account we call it true or false, according as it fulfills or fails to fulfill the office it has undertaken. To express the same truth otherwise: Knowledge claims *validity* for itself. Now what is meant by truth and validity, and does knowledge fulfill the task it has assumed; is knowledge true to the standards by which it is to be judged? These questions form a second problem, which we may call that of the Validity of Knowledge. Yet again, knowledge is not only an interpreter; it is also an interpreter of the *world.* That is, we first laid emphasis upon the word "interpretation" in our definition; we now lay stress upon the word, "world," or "reality." What is involved in the claim of knowledge to be the interpreter of the *world?* What is this world or object that knowledge starts out to interpret? From what ultimate standpoint does she undertake her task? Does she start out with any definite conception of the world already formed; in other words, does knowledge make any presuppositions about her object before even commencing her own work of interpretation? Does she start out with her work planned out before her? In short, what is the picture of the world that we should get did we question knowledge carefully in the act of starting out upon the work of interpreting the world? This problem we shall call accordingly: The

World as Presupposed by Knowledge. Finally, there seem to be four great types of knowledge that claim to interpret reality. Are they equally valid? Thus, finally, there is the fourth problem: In how many ways can the world be interpreted?

Thus we have four problems constituting the field of epistemology: —

1st. The Nature of Knowledge,
2d. The Validity of Knowledge,
3d. The World as Presupposed by Knowledge,
4th. The Manifold Interpretation of the World.

We shall now pass to the study of the first.

CHAPTER XXXVII

THE ELEMENTS OF KNOWLEDGE

All Knowledge consists of Judgments, not psychologically but epistemologically speaking.

THE first general answer to the question, What is the nature of knowledge? is this: All knowledge consists of judgments. Let us try to see whether or not the answer is correct.

In the first place, this statement may surprise those of us who remember that the most usual form in which knowledge exists is what psychology calls perception, and that it would be bad psychology to call a perception as such a judgment. How are we to reconcile the teaching of psychology that most knowledge does not take the form of a judgment, with the assertion that all knowledge consists of judgments? Perhaps this will be clear at once when it is said, we mean by our statement that all instances of knowledge perform the same office as does a judgment, in short, are the full equivalent of a judgment. Then, too, knowledge is always responsible for its content in just the same way as is a judgment.

Let us see whether or not this is true. When we take the expression of the child, "Baby wants," as it stretches forth its hand toward some object on the floor, we have surely for all of us the equivalent of the adult's request that the given object be brought to him. It is true that the child has not in words asked us to pick up the ball from the floor and to hand the ball to it; but for the intelligent companion it has said something fully as useful under the circumstances, and as a consequence it is just as likely to get what it wants as though its speech were developed. ~~So,~~ though the words are not the fully expressed request, they are an equivalent, and can therefore be transformed into such a request. In fact, they are so transformed by the intelligent listener. In the same way, no matter what the psychological form may be in which knowledge appears, it is always the equivalent of a judgment expressed in full. Another way of saying this is, that *all knowledge would take the form of a judgment, did we express in words explicitly all that it implicitly asserts.*

But why does the theory of knowledge bother with this question? Because, if we are to study knowledge as an interpreter, or asserter, we must have before us explicitly all that is asserted or implied. We must open up all its secrets, no matter how hidden or evasive these are. In short, to deal with any form of knowledge we must transform its implicit content into a type of knowledge in which this content is explicitly expressed. As long as we do not in so doing alter the meaning, that is, as long as the resulting expression is the exact equivalent in meaning to the original, we have not made any change whatever *as regards the element we call the interpretation.* Of course we have altered the words, and we have altered the state of consciousness, it may be, from a perception to some other form. However, we have not in any way altered the meaning. Hence, since knowledge when expressed explicitly is always in the form of a judgment, we may say that for the theory of knowledge all knowledge must be regarded as consisting of judgments.

Psychologically, much of our knowledge is not judgment.

In doing so we do not wish to teach psychology or in any way interfere with the results of introspection. From the point of view of psychology no doubt most of our knowledge is not in the form of a judgment. Probably most of our knowledge is perception.

Thus, as we walk along the street, we keep on the sidewalk and off the lawns; we do not run into trees or people as we pass by; we avoid trolley cars, waiting for them to pass before we cross over. During all this time our eyes, and back of them our minds, are elaborately interpreting the surroundings and thereby guiding our actions. As the eyes rest now upon this object and now upon that, our minds at once perceive the one as sidewalk, the other as grass; the one as a tree, the other as a fellow-being; the one as a distant car, the other as a rapidly approaching one. The work done is very accurately and successfully done; but unless we think carefully we are apt to forget how great that work is. Unless we have studied psychology, we do not notice how much preparation, or education of our central nervous system, is presupposed in the marvellously rapid, easy, and efficient mental activities that these perceptions of ours are. But this truth is just what we must not fail to notice in philosophy; for here we are most concerned, not with the problem, With how simple a form of consciousness nature performs a marvellously complicated work, but rather with the problem, How wonderful a work nature performs sometimes through a simple form of mental life. In any case, just what we want to make explicit is the amount of work in the way of interpretation accomplished by that something which, no matter what its form, we call *knowledge*. When we do express this explicitly, it will always be necessary for us to do so in the form of an elaborate system of judgments. We should certainly find it very hard to express it in the form of gestures, and we should surely be unable to do so accurately and fully. Language alone forms the means that nature has so far devised to do this work. Accordingly, to give a completely explicit expression of the implication of our knowledge, we shall be forced to make use of language, and that means, of sentences. Now every sentence that contains or implies an assertion, as we know from our logic, is called a *proposition*. Thus we may say: All knowledge is for philosophy a judgment or its logico-linguistic equivalent, a proposition. Thus our original question, What is the nature of knowledge? becomes now the modified question, *What is the nature of judgment?*

The three elements of judgment.

To answer our last question, What is the nature of judgment? we must analyze judgment into its elements. But before we are able to do so, we must be informed what is meant by an element of a judgment. An element of a judgment is whatever is necessary to its being a judgment at all, or from our point of view, an interpreter. So, whatever is necessary to any judgment as an interpreter is an element of judgment.

(*a*) The Object of Knowledge, or the Given.

To return to our former question, there are three such elements: First, a judgment to be such must have some object to interpret. An interpretation of nothing whatsoever is no interpretation at all; that is, to interpret, we have to have a problem to solve, a question, What is this, What is that? Now the "this" or the "that" point out to us the object about which we are to judge. Were they not pointed out to us, or did we not perform this office for ourselves, clearly we should have no need, and no power, to interpret. So one of the things, or elements, involved in all interpretation is *the object to be interpreted. This must be given to us in some way.* It must be before our mind. It must stand there revealed to our consciousness. Otherwise, knowledge were like a meteor dashing through space but going no whither. Nothing would be there to determine its course. In fact, it would be rather like an object going in an infinite number of directions at one and the same time; whereas we know that motion at any one instant must be along a straight line in but one direction. In short, a judgment without an object of interpretation is impossible. Now the technical name of the object of knowledge in general is *The Given.*

(*b*) The interpretation itself as such.

The second element of judgment is, of course, the actual interpretation itself. That this must be present is a truism.

(c) The Principles of Knowledge.

Thirdly, we have as the final element those laws, or rules, that a judgment must obey in order to be true, for its claim to be true is an essential element in every judgment. In its very claim to be true, it makes itself responsible for having accomplished something. What is this responsibility? Naturally, if we find knowledge ever inconsistent with its claims, we bring it at once into question. Consequently, this responsibility takes on the form of rules, or laws, or again canons that judgments must obey or else be untrue or false claimants of the respect they demand. To disobey these laws would therefore be treason to knowledge itself. These laws, then, or as we shall call them, the *Principles of Knowledge*, form the third element of judgment.

Thus the answer to our question, What are the elements of knowledge? runs, *The Given; The Knowledge*, or *Interpretation itself;* and thirdly, *The Principles of Knowledge.*

CHAPTER XXXVIII

THE GIVEN, OR THE OBJECT OF KNOWLEDGE[1]

The distinction between the terms, The Object of Knowledge and The Knowledge of the Object,

We have found that in any given instance of knowledge there are always present the two elements that we may call respectively *The Thing Known* and *The Knowledge of the Thing*. The former is *the object of knowledge;* the latter, *the knowledge of the object*. Let us take, for example, my recognition of the object that I now hold in my hand. I say that it is a pen. Now what I call the pen and what I call my recognition of it are two entirely distinct things. The former is something quite independent of my present knowledge. It might have existed had I never been born; and it might be here on my desk though no human being were in the room. Thus its existence is one fact by itself, and my recognition of it is another fact again by itself. The one belongs to a world quite apart from my own consciousness; the other is a state of mind that formed part of my conscious life as I looked at the pen.

and between the terms, Fact and Truth.

The subject of this chapter is the epistemological problem concerning the object of knowledge; and our first thesis is that *the object of knowledge is always some fact.*

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[1] *Literature.*

On the subject of this and the following chapter the advanced student is referred to the following books: —

Hobhouse, The Theory of Knowledge. Part I, Chapter I.

Sir Wm. Hamilton, Lectures on Metaphysics, Lectures XII and XXIII.

Bradley, Appearance and Reality. Chapters XIII, XIV, and XV.

Marvin, Die Giltigkeit unserer Erkenntniss der objectiven Welt. Halle, 1898.

The Object of Knowledge is always a fact.

Our thesis, of course, presupposes the truth which we have already proved, that in all cases of knowledge we know some object. To this truth it adds the new statement, This object is always a fact.

The word, "fact," is one surely familiar to all of us; but doubtless we often use it in a different sense from that in which our chapter now employs it, for as a rule, we employ the term simply as synonymous with the word, "truth." Somebody doubts the truth of our account of this or that experience; and we remonstrate, "No, it is a fact; it happened just as I told you."

Here, however, we shall try to keep the two terms, "truth" and "fact," sharply distinguished. A truth is a correct interpretation of some fact. What claims to be a truth, but is not, we call false, or erroneous. What is held to be a fact, but is not, we say, does not or did not exist. A fact is, then, whatever exists or has being. In history, the men and women whose lives are described are facts, whereas in most fiction they are not such. Thus it is that when we claim that what we have said is a fact, we should mean that no question whatever has been raised, concerning our interpretation of what occurred. The question at issue was solely: Did the event itself take place? Did Shakespeare write the plays attributed to him? Here it is a question of fact, not a question of interpretation. Of course, if we appeal to other facts as testimony, then we introduce the interpretation of these new facts into the controversy; but our thesis in the beginning involves solely a question of fact. Thus, the original thesis maintains that the object of knowledge is always a fact; that is, always exists. In still other words, every object of knowledge is always some real or existing thing.

Proof of this proposition.

If we think a moment about this proposition, we are very likely to reject it as false; but a longer consideration will surely enable us to see how true it is. The reader might say: Of course your pen is a fact, and so is the paper on which you write. Hence, you say quite truly that the objects of your recognition in this case are facts. But let us suppose that you are on the other side of the room and are short-sighted and see something lying on your desk. You think to yourself that it is a pencil, but as you come forward to pick it up you discover that your pencil proves to be a pen-holder. Where now is your fact, for surely no pencil exists? In this case, the reader would surely at once see his error. The fact I was interpreting was there all the while. The error clearly consisted in a misinterpretation of a fact. The fact I was interpreting pencil, I should have interpreted pen-holder.

Still the reader may object. What here is quite evidently true, is not so clear did we instance illusions, hallucinations, and dreams. In a quotation Professor James makes from Reid we have such a possible claimant. Reid says: —

"I remember that once lying abed, and having been put into a fright, I heard my own heart beat; but I took it to be one knocking at the door, and arose and opened the door oftener than once, before I discovered that the sound was in my own breast."[1]

Now in this case was the object of knowledge a fact or not? But what was the object? Surely, the noise. The noise existed, but the mind of Mr. Reid misinterpreted the noise. What should have been called heart-beating was called knocking at the door. Again, in a similar quotation from Delboeuf: —

"The illustrious P. J. van Beneden, senior, was walking one evening with a friend along a woody hill near Chaudfontaine. 'Don't you hear,' said the friend, 'the noise of a hunt on the mountain?' M. van Beneden listens and distinguishes in fact the giving-tongue of the dogs. They listen some time, expecting from one moment to another to see a deer bound by; but the voice of the dogs seems neither to recede nor approach. At last a countryman comes by, and they ask him who it is that can be hunting at this late hour. But he, pointing to some puddles of water near their feet, replies: 'Yonder little animals are what you hear.' And there were in fact a number of toads of the species *Bombinator igneus*. . . . This batrachian emits at the pairing season a silvery or rather crystalline note. . . . Sad and pure, it is a voice in nowise resembling that of hounds giving chase."

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[1] James, Psychology, Vol. II, Chapter XIX.

Here, too, a noise that actually exists is misinterpreted. Yes, you say, but in hallucinations and dreams such is no longer true. Then the object is purely imaginary, and no corresponding fact exists. But do not let us be too hasty. In an hallucination what is it that we assert, and what is it that proves to be false? Take a concrete case again from Professor James' book:—

"When a girl of eighteen, I was one evening engaged in a very painful discussion with an elderly person. My distress was so great that I took up a thick ivory knitting-needle that was lying on the mantelpiece of the parlor and broke it into small pieces as I talked. In the midst of the discussion I was very wishful to know the opinion of a brother with whom I had an unusually close relationship. I turned round and saw him sitting at the farther side of a centre table, with his arms folded (an unusual position with him); but, to my dismay, I perceived from the sarcastic expression of his mouth that he was not in sympathy with me, was not 'taking my side,' as I should then have expressed it. The surprise cooled me, and the discussion was dropped.

"Some minutes after, having occasion to speak to my brother, I turned toward him, but he was gone. I inquired when he left the room, and was told that he had not been seen in it, which I did not believe, thinking that he had come in for a minute and had gone out without being noticed. About an hour and a half afterward he appeared, and convinced me, with some trouble, that he had never been near the house that evening."

Surely, you will not maintain that the-brother-sitting-in-the-chair opposite the young woman was a fact. No, indeed, that certainly was not a fact. But before we judge too quickly, let us ask whether or not that really was the object of knowledge in the given case. Her error arose not in seeing the image of her brother sitting in the chair opposite, but it was in being misled by her vision. Her error lay, and lay only, in mistaking an hallucination for a normal perception. In very truth she did really see what she describes, but the vision was not a perception justifying her in maintaining the actual existence of her brother in the room at the time. There lay her error. Had she said, "I have such and such a vision, but it is only an hallucination" (in short, had it been what James calls a pseudo-hallucination), she would have made no mistake. If this be true, surely the object of her interpretation would exist in either case. If it had been a true interpretation, surely that object would have existed which was being interpreted; but the same object is being interpreted in any case, that is, in the erroneous as well as in the correct interpretation.

But take another example. "I took a walk yesterday afternoon." Some one that was with me the whole day may object and say, "No, you did not take a walk yesterday, but you stayed home the whole day; it was the day before yesterday that you took the walk." "Here," you will say, "is an example where the object is not a fact. The walk you took is after all no object at all; namely, yesterday's walk is pure imagination on your part." You are quite right; "yesterday's walk" is pure imagination on my part; but here again let us first make sure whether or not this is the object or the false recognition of the object. I think we shall find it to be the latter. Now, what is the object that I am recognizing here? Is it not a state of mind, called memory, the remembrance of some walk that I took? This remembrance takes the form of a remembrance of a walk yesterday. So far my recognition was correct. Had I said, "I remember distinctly, though my memory may mislead me, having taken a walk yesterday," then I should not have made an error. I do remember; the trouble is, my memory is not in agreement with what actually occurred yesterday. The error was therefore in regarding my memory as trustworthy in informing me of what happened yesterday. In other words, I recognized my memory as trustworthy when in reality it was not such. I really did have such a remembrance. The remembrance, however, was not trustworthy. *It was none the less a fact.* The fact, however, I did not recognize correctly.

Clearly we should get the same result did we appeal to any other hallucination or to a dream. The error can consist only in mistaking something for what it is not. As a mere vision, or state of consciousness, we should call it neither true nor false. It is when we consider the further claims all such states are liable to make that we discover error. This error, did we examine it, would always be found to consist in a wrong interpretation of something; and the something, from the nature of the case, must be a fact.

Error lies not in the object but always in our interpretation of it.

Thus in all these cases if we ask ourselves, Where does the error lie? we shall have to maintain that the knowledge is at fault, not the object itself. In fact, we have come upon a fundamental truth. In all cases of knowledge we err or are correct *in our knowledge*, that is to say, our knowledge is true or false. The object of knowledge, however, is never true or false. Whether we be right or wrong, the thing we recognize or think we recognize remains the same. If we see an object and a savage sees the same object, and if we recognize the object as a watch, and if the savage does not know what it is, but finally calls it an animal, the object in both cases is the same, the knowledge differs. We do not say the object mistakes, is false; but we regard the knowledge of the savage to be at fault. Thus, inasmuch as the object of our knowledge is never regarded as true or false, but only the actual knowledge itself, therefore we call the objects facts. They are facts because we never find them, and never can find them false. No matter how many times we may multiply the cases, the result will always be found the same. The object we know is a fact; the knowledge, or interpretation of the fact, is that alone which may be called true or false.

We may express the whole thesis in a more abstract way. For our knowledge to be true, it must be a correct interpretation of something. Were it an interpretation of nothing whatsoever, how could we presume to call it true? Again, if it be a false interpretation, it must be an interpretation of something actually existing; otherwise, why should we call it false? An interpretation of nothing whatsoever we do not honor, even with the name falsehood; rather, we call it nonsense. Thus it is only because our words claim to be a true interpretation of some actually existing object that we can call them either true or false.

On the contrary these objects or facts form the very foundation of all proof, or verification.

The facts with which our consciousness is always furnishing us are the foundation of all proof. When I make a statement and any one doubts what I say, he has a right to ask me, Where are the facts? Before requiring his consent to my statement, I must tell him just how he can get hold of these facts, or I must do my best to bring the facts to him. I make the statement, "Yonder, on top of the mountain, stands a log cabin." My eyesight being better than his, he fails to see the object that I see, and from some further ground perhaps doubts the truth of my statement. He asks, Where are the facts? I answer, If we walk straight ahead for fifteen minutes, you will clearly see the object, the fact; or, again, if you look through this glass, you will clearly distinguish it amid the cluster of trees. He sees the object. I have pointed out to him the fact. He is intellectually satisfied.

It is the same with all our knowledge. It is a knowledge about facts, and is proved true and can only be proved true by an appeal to facts. Whoever fails to observe the facts must fail to see the proof. Our sciences are examples of this. We have our text-books, but the most important part of our learning is in the laboratory itself, where no man's opinion but the facts themselves persuade us of the correctness of the teacher's views. It matters not what this laboratory is. It may be the chemical laboratory, or the wide world itself; it may be our own after life, or it may be what we can get only by turning our eyes inward on our own conscious states and seeing what they look like. In all the sciences, then, we are interpreting facts. Our interpretation to be true must agree with the facts. Showing that our interpretation does agree with the facts is the proof of our interpretations. But you see in all this one thing is never called in question, namely, the fact itself. We may doubt whether the scientist can show us the fact; but the fact present is something given, is a premise that we have to accept. We can never find fault with him that founds his knowledge on facts. If his knowledge be supported by the facts, that is the most we can require. The facts then form the premises of knowledge, the ultimate premises. They never give rise to a *petitio principii*. For this reason they are called the Given.[1]

They form our premises, and so are called *the Given*.

The problem then of Ancient Scepticism, the Deception of the Senses, we can set aside.

That the universe is the object of our knowledge, that it is, in other words, the material given us to interpret, and that the task of our knowledge is interpretation, this is the belief of our times. Deception is always the work of judgment, or what can be transformed into a judgment. As Descartes told us long ago, a proposition, as such, is not false, it is the assertion of the proposition that makes it true or false. The rising of the sun in the west is, as a mere thought, neither true nor false. Quite different, however, is the assertion that the sun rises in the west. We are not bothered to-day, as the Greeks of old were, about the deception of the senses. The problem for us is different. The senses, as such, do not and cannot deceive. The senses can inform us as they will, their whole information and their contents are one and the same. As such, why call them true or false? It is not what the senses give us that causes the trouble, it is what we do with their contents. My dreams are not false, nor is a novel false. We do not charge the author of a romance with falsehood, nor have we any right to hold our dreams as such. The romance becomes an untruth when it is asserted as history. The dream becomes false when it is confused by us with the sense-perception of the waking state. It may be that we are so used to believe and to assert what we see and touch that in the dream itself we never question what it is, but accept it as waking sense-perception. The fault here, however, does not lie with the dream as such, but with our acceptance of it, or better, our misinterpretation of it.

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[1] The remainder of this chapter is taken largely from my Syllabus of an Introduction to Philosophy.

But do not my senses deceive me when I walk plump into a mirror, thinking that a passageway extends before me? Not at all. The information the senses give me in this case is just as little deception as in any case. The trouble was not in any information the senses gave me, but in the way I accepted and interpreted that information. It never occurred to me to ask: Is this picture before me a reflection? Had I thought a moment, I should have found that the information of my senses harmonized with the presence of a mirror just as well as with the presence of a passageway, and possibly even better. My error was due to carelessness, or to habit. It is seldom that I am placed in front of a mirror whose presence is not easily detected. Hence, I have come to take it for granted that such a vision as my senses then furnished me is to be interpreted "a passage in front of me." The fault belongs to what was done with the contents of sense, or to their interpretation, not to the contents themselves.

Thus we have learned to blame the one really at fault, not the unoffending party. The guilty one in deception is the knowledge, or the interpretation of the Given. Were the Given always rightly interpreted, no fault could be found. All would go well, and the universe would soon cease to have secrets unrevealed to us. Science would soon have reached its goal, a complete knowledge of reality.

But we all know full well how far we are from the realization of this ideal. Yes, we know more, too ; we know that we shall never realize it. But why so? If correct interpretation is all that there is needed to gain what we want, why can we not gain it? The reason is very soon found. To interpret we need more information than the senses at any particular moment give us. Hence, interpretation means a careful and endless search for new facts to help us know the old ones. As we learn morally only by hard experience and many a mishap, so also in science do we learn only by ceaseless labor to see in the contents of sense what is there given and what is not. Without wide and varied experience, chairs, food, friends, and self would be as little known by us as are all the individual grains of sand on the seashore. To interpret then means careful watching of the object that we seek to know better, and a vast amount of knowledge about other objects, too. Were this not so, the goal of knowledge had long ago been reached.

How are facts given us?

But a new question arises here: How are we furnished with facts? How are they *given us?*

Answer, through consciousness.

It is at once evident that the means whereby we gain their possession is our consciousness. As opposed to the inanimate world about us, you and I are aware of the world in which we live and of which we form a part. Robbed in any way of that consciousness, we lose at once part of the world that beforehand was revealed. Thus, did we lose our eyesight or our hearing, the world of light or the world of sound would be lost to us forever. But as we have also seen, our mind does more than merely reveal to us the world in which we live and move and have our being. It interprets the world, and the way in which it interprets that world is through judgments about it.

But consciousness also interprets.

How shall we distinguish between the two acts of mind?

How are we to distinguish between these two acts of our mind, between the consciousness that reveals or makes us aware of the facts and the consciousness that interprets these facts?

At the first sight the problem seems an easy one, for psychology tells us at once of a great class of mental states that do reveal the world, but are not judgments, namely, our perceptions. Hence are we not to hold that the acts of mind by which facts are revealed correspond to what psychology calls perceptions? Are we not to say that error rises solely where judgment exists, and that any cognitive state not a judgment cannot be regarded as true or false, but must be held to give us facts? Let us first see what this question means. First of all, we may hold that unless we make some assertion about something, unless, in other words, we say something about it, there is nothing done on our part that could possibly be regarded as false. For instance, we may hold that if I see an object across the room, it does not matter whether there really be such an object there or not, provided that I seeing it do not make the assertion that the object is there. We cannot be convicted of error because we happen to have a vision or a dream. The error makes its appearance first when we assert in some way, either so others can hear us or to our-

One answer, facts are revealed through perception.

selves, that we really see normally that of which we have a vision.

This psychological division does not hold epistemologically.

This theory is certainly false when stated in the form that what psychology calls a judgment must first be made before error or truth may be ascribed to our cognitions. This is wholly to mistake the most usual form of our cognitions. Most of them contain no judgment whatsoever, and no one can rightly hesitate to call them true or false, unless he change the ordinary meaning of these words. When from the other side of the room we see a pencil, and, coming nearer, find that it is a pen and not a pencil, our perception is held to have been false. Our perception was not merely a vision of the object, it was a *recognition* of it. If we walk straight along a passageway and suddenly run against a mirror, we certainly have made a mistake. The mistake was evidently that we recognized something as a continuation of the passageway which in reality was a mirror. We had a false perception. In other words, psychology shows us that much simpler cognitive states than judgments must be called recognitions. They are recognitions because our previous experience goes to make them up. It is not our first meeting with the object, but in some of its elements perhaps even our millionth.

Thus no matter what the psychologist may call a judgment, we must call any form of cognition that does the work of a judgment, a judgment in so far as to ascribe to it truth or falsity. We must claim that any event whatsoever which leads us astray, which, in short, is for us a false interpretation of something, that this event is false; that further, any event which is for us a true interpretation, which equals or serves the purpose of such an interpretation, is a truth.

Hence we may answer the question under consideration as follows: Perceptions, being always to some extent a recognition, or an interpretation, are to be regarded as true or false. We must then not confuse the object with our perception of it. Our perception can be false, and looked at from this point of view is not a fact.

Our perceptions perform a twofold office: they both give and interpret facts.

But what gives us the facts? You say, "What I perceive is not a fact because it may be true or false, how are we to get at the facts at all?" For our present purposes we had best answer, Our perceptions are in character twofold. *They give us the fact, but along with the fact its interpretation.* If we could get back to the early state of infancy, where we believe things are seen but in no way recognized, then we should be in a position to say (provided you regard sensations as cognitions) we have a cognition of the object, but a cognition that cannot be called true or false, and so must give us fact with no interpretation of the fact. But in the developed consciousness our past experience, stored up in us in some way, is constantly at work putting itself into every cognition, so that it is an exception of exceptions to have a sensation that is not any more than a sensation, that is not a perception. In other words, we see, hear, and touch things which we have seen, heard, and touched hundreds of times before, that is, either these very things or things similar to them. We see a certain man for the first time, but we have beforehand seen thousands of other men. The object is no stranger to us. We recognize it at once as a man. We, in fact, perceive a man. As psychology tells us, we have learned to see objects, to see them distinguished from the objects about them, to see them stand out in space, to be at a certain distance away. Our developed consciousness has become so wonderfully well adapted to the greater number of our needs that our perceptions, simple as they seem from the point of view of introspective psychology, perform the office of very elaborate interpretations.

On the other hand, however, we have said that they none the less give us, along with the interpretation, the facts, or bring us into direct contact with the facts. If we then lay aside (leaving out the question how far this is possible) that element of the perception which makes it an interpretation and strive to get merely what it tells us and stop regarding it or using it as an interpretation, then we may say we have come directly to the facts. The facts are what our eyes tell us, if we but cease accepting the interpretation given in our perception as either true or false. If we say the object we now see, no matter whether it be the book our perception tells us it is or not, is a fact; this illustrates our meaning. Perhaps it is not a book. None the less I see an object, no matter whether my interpretation be true or false. The object is a fact, I do not care whether I be dreaming, normally seeing or having an hallucination, there the object is. No matter what it is, it is a fact directly given. Whether it be a book, a box, a picture, or anything else you wish, there it is. I cannot deny its existence, because my consciousness directly gives me the object as a fact. In short, it is a given fact; it is not something that comes under doubt, nor is it to be discussed. *It is*, in other words, *given*.

To use epistemological terms, facts are given us by *Intuition*, and any form (psychologically speaking) of consciousness is intuition.

Thus we may conclude: No one type of consciousness, as psychology classes our mental states, corresponds to that act of mind by which the facts of the world are revealed to us. Any form of consciousness whatsoever, no matter how simple or how complicated it be, psychologically speaking, always reveals to us or makes us aware of facts belonging either to the world within, our mental life, or to the world without, nature. Consequently we shall *not use any psychological term, but an epistemological* one, to describe this state of mind. That term is *intuition*, or *simple, or direct, apprehension.* Either term is used. Now any state of mind, any mental state, intuits or apprehends facts. It may do far more than this all at the same time, and both elements may be so organically intergrown, or fused together, the intuition with the interpretation, that no psychology could even begin to dissect the two apart. Therefore, let it be understood once and for all: when we speak of consciousness, on the one hand as a revealer of facts, as intuition or as apprehension, and on the other hand as an interpreter of facts, we are not referring to any psychological division. One and the same mental state or psychosis may be both, and moreover both beyond the possibility of psychological analysis.

CHAPTER XXXIX

THE GIVEN, OR THE WORLD OF FACTS

The World of Facts.

THAT there should be such a thing as knowledge, we have seen, there must be also a world revealed to our minds. This world is revealed to us as facts. We shall call it, therefore, the world of facts; and because it is presented to us to interpret, or given us as the ultimate starting-point of knowledge, we may call this world of facts, the Given. The two names we can use interchangeably. Thus defined, the Given includes every fact in the universe, not only the universe of the past and present, but also the universe of the future. Every fact that has been, is, and ever will be, is contained under this term. Everything that possesses in theory the power of being revealed to consciousness is a fact, and as such belongs to the Given. Of course, our world with its indefinite æons in the past may have existed countless ages during which its facts were not revealed to mind and were not interpreted. However this may be or not be, our proposition is in no way concerned. Those facts as such would have been knowable, that is, they were something that could have been revealed to consciousness and interpreted by it.

The problem, What is the world of facts?

But let us try to understand better the difficult problem before us. What is this world of facts, what is the Given? What is that ultimate deposit in the way of *material for interpretation* which is given to our minds? When we thoroughly analyze any chosen instance of knowledge, we shall find the answer to this question a very abstract one and, at first sight, almost absurd—yes, absurd, for we shall find that the so-called facts of the past and facts of the future are not ultimately facts, and that is the same as saying, they are not facts at all. *The past and the future are inferences that we make on the basis of the present.*

But let us see how all this can be true. We shall have to approach our problem from several points of view in order to find all that is involved in its correct solution. From one point of view, as we have seen, we mean by the Given the sum-total of the facts of the universe. From another, we mean whatever can be revealed to our consciousness as actually existing. Thus by the Given we mean all existence, and this in turn means, all existence as far as it can be revealed to our consciousness.

A concrete case that indicates the answer.

Let us look at the implication of these abstract statements more in the concrete. At this moment I sit writing in a college library, and other students also sit reading or writing at the different tables near by. About the walls there stand book-shelves laden with the volumes that form the reference library. From above, through windows, the light streams into the room. Now and then the stillness is broken by the pen of some writer, or by the turning of a page, by the heavy breathing of some neighbor, or by a restless reader changing his position, or by the footsteps of some one going or coming. As I sit here, these presentations and hundreds of others come streaming into my consciousness. They reveal to me the world about me. Not only do they form the means by which I know where I am, what I am doing, what time of day it is, what I must do, the purpose I have in doing the writing in which I am engaged, in short, not only do they form the means by which I look into my present life, and all that makes up that present life; but more than this, they form the material from which I start as I allow my mind to wander over my life in the past and recall the scenes of days gone by, when I went to school, when I was a child, and hundreds of other things that come flooding into my mind. More even than this is pulled out or drawn out of this great receptacle we call our present experience; for I can wander on and think about what science teaches concerning the history of our civilization, about the origin of man, about the generation of our continents and oceans, and about the coming into being of our solar system. Or again, my mind can wander on into the future and I can speculate about the years of my life that are to come, about the future of our nation, the future of our planet, its final destruction in collision with the sun. So starting from these experiences flooding into my consciousness, I can gradually unroll before the mind's eye a panorama of a seemingly infinite universe.

The difference between *present* facts and facts of the past and future and also the not-experienced present.

Yet in all this it still remains true that I am sitting here at the table surrounded by students, books, walls, light, and a world without that is shut off from my view by the walls of the room. After all, there is a great difference between those things or events that are now actually revealed to my senses, and the thousands of things that imagination recalls. My speculation about the future may not be correct, perhaps the years to come will be far different from the picture which my imagination has constructed. Perhaps, too, astronomy and history are wrong in their interpretations of the boundless past and future. There is, then, a marked difference not only between the present which is and the past which now exists no longer together with the future which has still to be, but also between the present things and events that are directly revealed to my consciousness and those things and events that my mind only tells me exist without the library building in the immediate neighborhood, and on and on throughout the miles and millions of miles that stretch from this room out into every direction of space. This marked difference between the present actually revealed to my consciousness and the present not revealed to it, along with the non-existent past and future, is the difference between what is for me a fact and what is only a fact believed in. The one is a fact now given or presented to my mind. The others are facts that somehow my mind tells me about, but does not reveal to me in the same sense as it reveals the paper and pencil, the desk, the room, the books, the students. But why is it I do believe in their past or future or present existence, though my mind is so limited in its ability to perceive? Clearly, the reason is because I believe that somehow those things and events could have been revealed to my mind in the past or can be in the future, just as now these immediate surroundings are revealed. It is true, I can never walk the streets of Rome with Julius Cæsar, I cannot go to Palestine on one of the crusades. It is true, my experience will never reveal the formation of our solar system. It is true, I cannot experience the arising of a great continent out of the sea. It is true, I cannot see the population of the planet Mars, if there be such a population. It is true, I shall not see the other side of the moon, nor shall I see the earth gradually drawn in toward the sun and the final collision of the mother sun and her daughter planets. Yet somehow, though these experiences will never be mine, there is still a sense in which I can say that they can theoretically be mine. It is true, practically, I can never see them; still it is also true that if I were there I should see them, if I had been there I should have seen them. Though it be true that no human being has witnessed or will witness most of these things and events; still it remains none the less true that they are such things and events as admit of being witnessed. Thus the fault does not lie with the things or events; the fault lies rather with your and my inability to come into such spatial and temporal relationship with them that we can witness them. So, no matter whether the happening in question be now and here presented to my mind, or whether it be in some far fixed star beyond any power of mine to witness; still both happenings agree in this at least, *both admit of being* *witnessed by a mind, if that mind come into proper relations to them.* In this sense, both they and all like things and events admit *theoretically* of being witnessed, of being seen, touched, or in some manner experienced. *Theoretically* they lie within a possible experience. It is true, that *practically* they do not. It is true, we have missed our opportunity to see many. It is true, we never had an opportunity to see countless hosts of them. It is true, we shall not live to see like countless hosts in the future. Still, though we miss, and though we never have, the opportunity, it remains true that the opportunity alone was needed to have made them, or to make them, like unto these facts now revealed to me in the library where I am writing.

The last three we call facts because they admit of a conceivable experience.

Now by the Given we mean all the facts of the universe, all these things that theoretically belong to an actual or to a possible experience. We call them all facts only for this reason. Were they not regarded by us as falling within a theoretical experience, we should not call them facts. In short, were we there and did we not see them when by hypothesis we should see them, or similarly not hear them when we should hear them; then we should say, they are not facts. If you tell me a horse and wagon are now standing on the table at which I write, I have my eyes and hands or similar organs of sense to fall back upon to prove conclusively to myself that no such fact exists, and so to regard your statement as absurd.

Yet even so, a conceivable experience is always a *present* experience.

Now let us regard our problem from another point of view. It is true, as we have just seen, that all these things and events are facts because they admit of being experienced. But how experienced, or rather when experienced? Forsooth, if they are to be revealed in any way to our minds or to any mind, they must be revealed as then and there existing. By the very constitution of your mind and the world itself, if we see anything we see it then and there. I cannot literally see the past or the future, but I see what is now at this very moment revealed to my vision. Hence it must be, that if by some magic process the panorama of all the past and all the future, as well as the present, is to be revealed to us, it all must be revealed to us as a present experience. To say I see the past is an absurdity. It is somehow a contradiction on the very face of it. When I say I see the past, I mean that I *now* have a vision that I interpret as a picture or representation of the past. But a present picture in my mind is no more the past than you are the same concrete entity as your photograph, or no more the past than you are now the same concrete, material shape and substance as your reflection in a mirror. Hence, were the past revealed to us, somehow time would have to be rolled back again just like the photograph in a kinetoscope. Instead of going from present to future as we are doing, we should have to go in the opposite direction, from present to past; and just as now at each moment what was the future is becoming the present, so then what is the past would have to become the present. Truly to have Julius Cæsar revealed to us, our magician would have to make us live literally nineteen hundred and fifty years ago, in short, would have to annihilate this period and bring back to existence the past which was once a present and make of it again a present.

In short, to be a fact means to be a present fact.

Of course to say he could do so would be sheer nonsense, for the past is forever past. The world is so constituted that the mill of time "can never grind with the water that is past." Hence the past is irrevocably gone. But the future also is irrevocably absent. As future it can never be ours. Thus we are by the very constitution of our mind and of the world limited to the four walls of the present, and therefore the facts that admit of our experience are only present facts. *For them to be facts revealed to us they must be present facts.* Thus it is we are forced to say, if we mean by the Given the sum-total of facts as far as they fall within a possible experience, the Given must be present.

facts. We can talk as much as we will about to-morrow's sun, to-morrow's sun does not exist and will not exist until "to-morrow" has become "to-day," nay, rather "this present instant." The fact of yesterday's sun has gone forever, and it could come again into existence only by "yesterday" becoming "to-day." But in both cases, neither "to-morrow" nor "yesterday" are "to-day," and you and I, reader, live "to-day." The world as revealed to you and to me is always revealed "to-day," never to-morrow, never yesterday. When we say we live in the past or in the future, "we do not speak the truth, but deceive ourselves." The past and the future of which we speak are but the picturing now, to-day, that takes place in our minds.

And this means that "the world of facts" for each one of us is the content of consciousness at the moment.

Here is one of philosophy's mysteries. You and I, as we sit contemplating these problems, are unfolding out of our present experience our knowledge of the boundless world of the past and of the future. It is the present alone that reveals to us the past, it is the present revelation alone that reveals to us the absent present, it is the present alone that reveals to us the future. Out of the little storehouse we call our present mental life, we unravel whole worlds of events. We talk and think about worlds that came into being through countless ages and of worlds that have for countless æons ceased to be. So also from out this little storehouse we take the picture of a boundless world surrounding us in space, — our city, our country, our continent, our earth, our solar system, the sidereal world, and endless space. In doing so, we that live in the "to-day" are absolutely confined to the "to-day." We are forced to do all our constructing by means of what our minds reveal to us now and here. If our minds refuse to do this, we fail utterly to accomplish our mental construction of the world in which we live. Thus our information, our intellectual capital, is our present consciousness and, which is the same thing, its content. The world in all its infinity is pictured to us by means of these present bits of information, and without them we could do nothing. Hence we are forced to draw this mysterious conclusion: *The world of facts for each one of us is the content of consciousness at the moment; and all that we call this great, boundless world is for each of us but the construction of our mind working over the facts given or unweaving the elements stored up in the contents of the present.*

The facts revealed in the present form the basis of our story of the world.

Of course this does not mean that the world of the past and of the future is in any way a delusion. Not at all. It means simply that as we deal with that world, interpret that world, or in any way come into relation to that world, we always have to do so by its representative in the present, by its mediator in our present consciousness. *Thus the world of facts for each one of us is just the sum-total of facts revealed to our minds in the present.* This makes up all our information. This makes up all upon which we base our story of the world. A being to whom all the past, present, and future were one unending and ever present experience is inconceivable. We finite beings, at any rate, must depend upon, or rather are shut up within the "to-day," or, better, the "immediate present."

The past and future are inferences whose premises are the present.

But now for a final look at our problem from a different point of view. In all our knowledge we are interpreting the facts revealed to our present consciousness. We never interpret literally facts of the past or of the future. That is, if we talk about the events that have been, we are always interpreting not the past fact, but its present representative in our consciousness.[1]

When I say that I took a walk yesterday afternoon, I am not in the last analysis interpreting yesterday's conduct, but *to-day's representation of yesterday's doings.* Surely without my memory I should be unable to say rationally that I took a walk yesterday. My whole justification for my statement is just what I can remember or what I now can learn or get in the way of experience. Yesterday's fact has gone forever, and therefore cannot now be presented to consciousness. Present experience, therefore, alone can give me the subject matter of my interpretation, "Yesterday I took a walk." Of course a fuller or more explicit statement, which reveals this truth, would say, "I now remember having taken a walk yesterday." In short, I am but describing to you the content of my memory.

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[1] Cf. Marvin, Giltigkeit unserer Erkenntniss der objektiven Welt, Part II.

Again, when the geologist shows us some geographical formation and tells us how it came to be, how the stratum was deposited ages ago at the bottom of an ocean extending over such and such an area of the earth's surface, he is but interpreting for us facts then and there revealed. He is giving us the history of just this formation and stratum. Surely no other facts but what his vision and memory convey are present, so these alone are being interpreted. Just as surely as we say he is interpreting facts revealed to his mind, just so surely must it follow from what we have seen that all the facts he is interpreting belong to the present. They can be called past or future only by proxy. It is true they do in some very real sense play the part and do the work of the facts that are no longer, or are not yet. Still it is also true that the present fact is the present fact, and is not either past or future. To us it may represent the one or the other, yet literally it is neither. Thus we are obliged to say, no matter how strange it may at first seem, the world you and I are interpreting is always the world revealed now and here immediately to our present consciousness. If the world of the past and future be given us, it is so only by proxy. Literally, the given facts are always furnished by our present consciousness. It is this Given that forms the object of our interpretation.

Thus the Given or the object of interpretation is the sum-total of facts revealed to our present consciousness; and this *for each one of us in any individual case makes up the sum-total of facts. All other facts are there only by proxy. They themselves are ever absent.*[1]

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[1] This argument is here cut short in the middle. As it stands we have only a half-truth for our conclusion; but to go farther means to take up the most difficult of abstract discussions. Strictly speaking, we should find that the Given cannot be called even the content of present consciousness. *It cannot be given any limiting designation whatsoever.* It is the present in the broader sense that includes past, present, and future; in short, it is not the present at all, but is timeless. It is consciousness, or the content of consciousness, only in the sense that everything is consciousness, in short, in a sense that robs this term of all meaning. That is, it is not consciousness. The Given is obtained, in short, by robbing the interpreted fact of all interpretation and so leaving us the fact, and nothing more. The Given is the reality, the absolute, in short, the object robbed of every trace of interpretation, relativity, or aught else in the form of knowledge. This will be shown us in Chapter XLV, which is really a continuation of this chapter.

For a fuller discussion of this position, I must refer the reader to a monograph of mine already referred to, Die Giltigkeit unserer Erkenntniss der objektiven Welt, in spite of its unsatisfactory style and presentation of the argument. A very short but very satisfactory statement of what seems to me exactly like my position is given by Professor Münsterberg in the first chapter of his Psychology and Life, a chapter every student of philosophy should read.

CHAPTER XL

KNOWLEDGE AND THE PRINCIPLES OF KNOWLEDGE[1]

AFTER answering the question: What is the object of knowledge? we come to the second question: What is it to know, or to interpret this object? What is interpretation as such?

To know is to find the relations obtaining among facts,

We give at once the abstract answer, hoping to make its meaning clear afterward. In fact, we shall give two answers to the question, the one stating explicitly more than does the other. The first replies: To interpret is to find all the relations that obtain among facts, and these relations may all be reduced ultimately to two; namely, those of likeness and difference. The second replies: To interpret is to determine the likenesses and differences that obtain among facts and on the basis of these relations to assert the law of their (the facts') existence. For instance, when I call this object a clock, I distinguish it from other objects and identify it with a given class of objects called clocks, and henceforth expect it to behave in all ways as a clock is known by me to behave. Again, if we watch a dog look into a mirror and commence to bark and then run behind the mirror to catch "the other dog," we know that he has identified the fact his eyes have revealed to him with the class of objects, dogs, and that he expects the "other dog" to behave as a true dog properly should. When the "other dog" does not do so, we laugh at the way in which our real dog has been fooled. In time he likewise will learn how "dogs in mirrors" behave, and will know better, and will not expect them to behave as real dogs.

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[1] *Parallel Reading.*
Spencer, First Principles, Part I, Chapter IV.

The difference between the two answers we have given is ultimately a difference in words. Did our interpretation really stop at the mere classification of facts, it would be useless or nearly so. You and I, to get along in the world, need more information about objects than their likenesses and differences for the moment; and, therefore, the very purpose we have in view when we compare two facts is to determine how far we can predicate of the one all we know about the other. In short, when we try to know some strange fact, we try to learn not merely what it is, but what we are to expect of it ever afterward. *We want to find out the law of its existence.*

and this means, the law of their existence.

But after all, this fuller definition may be found in the shorter one; for two objects or facts would not be truly alike unless they continued to be so in the future. It is not enough for us to find *a* and *b* now alike when we know that in a moment they will be different. Their future is always taken into consideration when we compare them, and hence if we say that they are alike, we mean also to say that they will be alike. The same law of existence or history belongs to both. Our comparison of the two would lose almost all its significance did we not keep their future resemblances and differences in view. Then, too, no one can foretell the future of any object except by determining the *present* likenesses and differences between it and other objects, the law of whose life we do know.

However, we shall begin our study by investigating knowledge as defined in the former definition. Let us study knowledge, then, first as a comparison of facts.

The ultimate relations are likeness and difference.

In our experience we find certain facts similar and others not similar. It is as though a stranger who had never before seen a deck of playing cards were to pick one up. He looks through the pack. First he notices that the cards are of two colors, one red, the other black. Next he looks through the red cards and finds that some have on them diamond-shaped spots, others heart-shaped ones. These also he separates into two packs. He looks again through each of these packs and finds that one card has but one spot, another two, another three. Thus he goes through the whole deck and finds that each card has certain characteristics that make it different from all the other cards, yet at the same time no one characteristic not possessed at least by three other cards. Thus he can speak of the aces, of the kings, of the diamonds, of the spades, of the black cards, or of the red cards. Each card always belongs to some one of these classes. Yet no two cards agree in being black and spades and aces all at once. This, or a similar combination, makes the card different from all the others. Whereas, being an ace, a king, a club, or a red card marks its similarity to the other cards. A similar truth holds in the universe of facts. In becoming better and better acquainted with the world we notice here or there differences between facts, at other places or times similarities between facts. The result is that facts soon come to be known facts, defined and differentiated facts. They come to be more and more "facts like other facts" and "facts unlike other facts."

Thus, all our concepts, or their equivalent in language, terms, are instruments to denote those facts that agree in some respect. For example, aces mean those cards having but one spot, kings, those having on them a certain figure. But inasmuch as concepts denote those facts which have the quality or qualities in common, they exclude those which fail to have them. Hence the word "ace" excludes the deuces, and ultimately all things that fail to be aces. In short, it brings together all things alike in the quality in question, and separates them from all other things.[1]

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[1] Inasmuch as they denote the things having these qualities in common, they are often said to connote the qualities themselves. We call the members of a class of objects denoted by a term its extension, and the

The complete interpretation of any fact would be to give its infinite relations.

From this description knowledge seems to be a sorting of the facts of the world, and an ordering of them into all manner of groups. Of course, one and the same fact may belong, nay, always does belong, to many groups. Thus an ace is a card, is red or black, is hearts, diamonds, spades, or clubs. But even this statement we shall have to extend. As far as we know, the possibility of placing one fact into many groups is infinite, for no fact in the universe is totally without some similarity to every other fact, and it would even seem that to find a difference between facts means there must be some similarity. Facts absolutely dissimilar are incomparable, and absolute dissimilarity, as we shall find, is an absurdity. But at the same time, absolute likeness would be equally an absurdity, because two things that were absolutely alike would be one and the same thing. In some respect they must belong to a different genus, even though both belong to an indefinite number of the same genera.

Thus to know a thing accurately and completely we shall have to show its likeness to everything else in the world and all its difference from everything else. Until this is done, our work of interpretation is not complete. But such a task is infinite; for it will require a comparison between our given fact or facts and all the other facts of the past, the present, and the future. Thus a complete knowledge of any one fact is for a finite mind impossible. It would give all the different classes to which our fact belongs; and these would be so many that by their endless number combined, giving all likenesses and differences, they would completely differentiate the fact from all others and yet give its likeness to all others.[1]

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qualities connoted its intension. Still whether we use a term in its extension or its intension, we are always making a comparison and asserting likenesses and differences.

[1] To do this we have to analyze it into all its elements. This alone as we have seen makes comparison possible. Thus right here we have the ultimate basis philosophically of the atomic theory.

In doing this work of interpretation or differentiating, there are three fundamental rules or principles that knowledge employs. These are called accordingly the Principles of Knowledge, or the Laws of Thought. But inasmuch as there are other principles of knowledge, some philosophers very rightly call them the Formal Principles of Knowledge or the Formal Laws of Thought; and in contradistinction, the others, which we shall study later, are called the Material Principles of Knowledge, or, as we prefer to call them, the Principles of Reality.

The Principles of Knowledge.

The former, or the laws of thought, are familiar to us all from our study of logic. They are the Principle of Identity, the Principle of Contradiction, and the Principle of Excluded Middle. The Principle of Identity is usually stated thus: "What is, is," or "A is A." The Principle of Contradiction is: "Nothing can both be and not be," or "A is not not-A;" and the Principle of Excluded Middle, "Everything must either be or not be," or "A must be either B or not-B." These laws might be called the laws of consistency. They state merely what constitutes consistency and require that if knowledge is to be knowledge it must be consistent with itself. Thus these laws reveal to us one of the great characteristics of knowledge, its claim to be always consistent with itself. Truth never contains or tolerates inconsistency, and therefore one of the chief criteria of truth is consistency.

Consistency as a Criterion of Truth.

But consistency means, as such, consistency for all time; and thus the whole past and future are necessarily brought into every comparison we make.

Now the very fact that knowledge claims to be ever consistent is the basis upon which her enemies, or the skeptics, attack her. Naturally, the only way in which any one can attack knowledge would be to show that she is not what she claims to be. Here, then, we see the problem arising that we shall have to study later. Is knowledge really consistent? Does she really do what she claims to do?

But we have still other elements of knowledge to point out. Knowledge according to our fuller definition not only compares facts, but asserts, as a result of that comparison, the history, or law of existence, of each fact that she is interpreting. In so doing knowledge always goes beyond the present, and therefore seemingly beyond the facts as given it, and tells about the time to come. It transcends the present and predicts the future.

Psychology tells us how this characteristic of knowledge gives it a value for our lives. Adaptation to environment demands that we should ever be preparing for the future, in fact, that is what we mean by an animal's adapting itself. Now one of the chief instruments of adaptation which nature has brought forth is knowledge; as it enables us to foresee, and to foresee is to be forewarned, and to be forewarned is to give us time to prepare for the future, to protect ourselves, to flee, to pursue, or otherwise to make secure our welfare.

Hence, whenever we know, or interpret, we predict how the object is to act, what is to be its future. Whenever we call an object a horse, we are not merely comparing some present fact with other facts now given us, but we are bringing into our judgments future facts. Thus should we find a moment later that the object before us did not agree with the qualities of a horse, we should at once say: "We must have been mistaken, for this object is after all not a horse. It seemed so at a distance, but now we see that it is a cow."

Had we truly confined ourselves to comparing the facts originally present, surely no new facts would have altered our conclusion or rather have interfered with its validity. But somehow we never do confine ourselves to the immediate present. If I call a fact a horse, a dog, a man, I mean to assert that for all time to come the fact in question will keep consistent with the character I have asserted of it. Or more accurately expressed, when we describe a fact, we are sure that all future facts will prove in harmony with our given description. But why should we care a straw about future facts when we say, "Yonder stands a house"? Clearly we should care, for our statement means to tell us about the future. Did we come near and find a large rock, we should say that it could not have been a house, for houses do not turn into rocks as we approach them. Likewise, in the case of the dog looking into the mirror. The "other dog" did not live up to the character ascribed to him. He did not act as real dogs act, otherwise he would have been found behind the mirror.

Thus knowledge becomes the assertion of eternal laws of existence.

Thus, whenever we make any assertion about a thing, calling it a house, a dog, a horse, a man, a seed, a planet, we mean that it will always act as these various objects are supposed by us to act. We never mean by the expression, "Yonder stands a house," that my present impression of the object exhausts all I know about it and all I mean to affirm of it. I mean that the object in question will always prove true to my present judgment.

This is but saying, that *what is true is always true.* Whatever is true from my present point of view must be proved true from every other possible point of view. When I call this a house, it must be a house in the judgment of my fellow-men and in my own future judgment. Even millions of years from now it must prove to have been a house.

When we make a comparison, we do so not for the moment, but for all time. It must be true to-morrow just as it is true to-day. A truth is an eternal verity. If *a* be *b*, then from all eternity to all eternity it is true that *a* was *b*. This does not of course mean that the world itself is the same from moment to moment. However, it does mean that truth is eternally the same. If it be true that Julius Cæsar lived, it must be just as true a million of years from now as it is to-day. Consequently, whenever we assert a truth, we assert it as being so to all eternity.

Still otherwise expressed, in all our judgments we are making ourselves responsible intellectually for all time to come. That is, we are to be held rationally accountable for a series of facts in harmony with our judgment and for the absence of all facts that would be out of harmony with our judgment, and this for all time to come.

Now that endless series of events forms the proof of our assertion. It is true that yonder object is a house if all future facts are in harmony with my assertion. Therefore just these future facts constitute the proof of my assertion. Further, this endless series of facts may be called the endless law of the existence of the object interpreted. We are asserting, of course, in a limited way, what the object will do under given circumstances for all eternity to come, or the eternal law of its being. Should any future event not harmonize with our law, then our law is imperfect and so also is our original assertion which was but the law. All our judgments are the assertion of such laws. From experience we have learned how this object and that object act; and when we find another object that is like one of them, we assert that it will always act as our past experience has shown us the object to which we have likened it did act.[1] Thus to know or to interpret, is to determine the likenesses and differences that obtain between facts, and on the basis of these relations to assert the law of the existence of these facts.

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[1] Cf. Die Giltigkeit unserer Erkenntniss u. s. w., Part II.

II. THE VALIDITY OF KNOWLEDGE

CHAPTER XLI

THE RELATIVITY AND INFINITUDE OF KNOWLEDGE AND ITS VALIDITY[1]

Our new problem.

WE have now learned what is meant by knowledge or interpretation. To know is to compare one object with all others, and on the basis of this comparison to assert the law of the object's existence.

Two chief charges against the validity of knowledge.

But if this is knowledge, two very serious charges may be urged against its validity. To compare one object with another is in truth to learn how they are related, but is it to learn what each object is in and for itself? If I call this object a dog, I have told you how it compares with other objects; but have I told you what it is irrespective of other objects, what it is as a reality all by itself? Then, too, inasmuch as the facts are infinite in number, we are called upon to compare each fact with an infinite number of facts.

Moreover, to know is not merely to compare, it is to make assertions about the future existence of the object interpreted. Now, as we have learned, the future is never given us in perception. Yet we make assertions not merely about the future, but also about all the future. We look forward to all eternity as we ascribe to each object the law of its being. Thus knowledge claims for itself an infinitude truly startling. Likewise in interpreting the past, knowledge claims to be able to deal with objects that exist no longer. How can knowledge get beyond the bounds of the present and know a world extending back indefinitely into the past and on into the future?

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[1] *Parallel Reading.*

Spencer, First Principles, Part I, Chapter IV. Cf. also Bradley, Appearance and Reality, Book I.

From these various charges urged against knowledge we may formulate two chief indictments. First, knowledge does not interpret the facts as such, but gives us only their relations. Moreover, knowledge claims to interpret and so to relate not only the facts of the present, but also the countless facts of the past and future. The problem raised by this charge against knowledge we shall call the relativity and infinitude of knowledge and its validity. This problem forms the topic of the present chapter.

Secondly, knowledge goes beyond the information furnished it in present consciousness, and claims to know the past and future, which, as such, lie outside of its data. This problem we shall call the transcendent element in knowledge and its validity. This problem will be the subject of the following chapter.

I. *The relativity of knowledge.*

Knowledge being made up of relations between objects fails to tell us of the objects themselves as such.

To know is to compare, to learn the relations obtaining between one object and all other objects. But to do this is an endless task, none the less such is the goal of knowledge. How far we are from reaching this goal, we all know full well. Yes, we know more, too. We know that we shall never reach it, for to reach it would require us to interpret every fact in the whole universe of facts. But even though we did thus interpret all facts, should we thereby unfold to view the real nature of the object interpreted? If to know is but to assert the likenesses and unlikenesses between one object and all other objects, knowledge wins at the best a view only of relations, never of the object itself.

Here before me lies an object. Is it impossible for me to say what that object is in and for itself, that is, irrespective of all other objects? If I call it a book, I am but comparing it with other objects. Likewise, when I refer to it as made of paper, when I give its title, and so on indefinitely, each is but a relation between it and other objects. In short, all predication is a comparison, and a comparison is finding the relations of one thing to another. Thus in very truth I am unable to tell what this object is in and for itself.

And further, even the objects seem to be no more than systems of relations.

But further, to know a relation must mean to know a relation between one object and another. Yet what are these objects between which the relation is said to obtain? Any answer to this question must in turn be but a new statement of relations. We know the relations between objects, but the objects are themselves as known only the relations between other objects. The book lies on the table; but what is the book and what is the table? If we interpret these, we can at the best give only their relations, or the relations implied by book and table. Thus, does not knowledge appear to be but knowing the relations between relations; for when we ask, What are the things we know? we get in reply the answer, "The things, too, are mere relations." That is, the whole world resolves itself as known into a system of relations, and when we ask, "Relations between what?" we always get the same answer indefinitely, "Relations between relations. All is relation."

Thus knowledge appears to be ultimately only relations, in short, relations among zeros.

How can such a system be valid knowledge? A relation presupposes two things to be related, and if the things themselves be but relations, we are forced to commence an endless search for the thing related. But we cannot reach the thing. Our system appears to be made up of relations between zeros or pure relations, that is pure nothing. Does not relativism then have as its conclusion complete skepticism? Is knowledge a valid process?

Reply: The argument only a half truth; Knowledge

But all this time we are forgetting one of the most important elements in knowledge. That is the Given. Knowledge, it is true, as a system of interpretation is an infinite network of relations; but it does not float wholly in the air. It is based on the Given, and it never leaves the Given. That is, we interpret facts by finding relations between them; and reality is so infinitely rich that these facts form an endless source for new relations. The difficulty with knowledge is not that it is a system of relations, but that its work of finding relations is infinite. Were knowledge a mere system of relations it would indeed be an air castle, but it is a system of relations based upon the factual, and ever appealing to the facts for its justification. If we can show this, the charge against knowledge proves groundless.

is a system of relations holding of facts, not of zeros.

Knowledge does find the relations between objects, and it is true that these objects in turn may be analyzed by us into new objects among which a new system of relations may be found to obtain. This we saw clearly in our study of the atomic theory. But are these objects merely relations? No, indeed. They are facts revealed to our minds—facts, it is true, that we know only by relating them to other facts. But the relation between facts is all we want to know and all that knowledge claims to give and ought to be asked to give. Knowledge is not merely a great cobweb of relations. Knowledge is a system of relations admitting of indefinite extension; but the objects among which the relations hold are always facts—facts revealed then and there, and demanding an interpretation. Were knowledge all, that is, did we ever have merely knowledge without the direct apprehension or intuition of the facts, then, indeed, the charge brought by relativism against knowledge would hold. But as we have shown in discussing the Given, such is never the case. There never is a knowledge without being a knowledge of some object, and this means without the data in the form of facts being revealed.[1]

To turn to the second part of this charge raised against

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[1] As far as Mr. Bradley's argument could be used by skepticism this would be my answer to it. Cf. Appearance and Reality, *loc. cit.*

II. *The Infinitude of Knowledge.*

knowledge. In comparing fact with fact knowledge includes all future and past facts. It relates the present revealed object to objects that are not revealed.

Knowledge is ever an appeal to the facts that can verify its assertions; but these facts extend through all future time.

How knowledge can transcend the present consciousness we shall consider later; but now we must hold ourselves to the one question, How about these past and future objects? They too, we maintain, are facts looked forward to as possible revelations to our minds. Hence, in bringing absent facts into relation to given facts, our knowledge is doing no more than asserting possible perceptions. That is, when we say of some object before us, "This is a book," we mean that we now have a certain perception, and that under certain given circumstances we shall always have this same or other definite perceptions. This will be clearer if we go more into detail. The object before us we call a book. Suppose we stretch out our hand and grasp it, but no sense of touch follows. We say at once, "I must have had an hallucination, that could not have been a book." In short, in saying that the object was a book, we implied that grasping it would mean a certain touch-perception. Again, supposing we grasp it, but find quite a different perception of touch to follow from that expected, that is, we find it is made of stone painted like a book. We say at once, "That is not a book," implying that, in calling it a book, we meant that to grasp it would be to get a particular touch-perception quite different from what we actually got. Again, if we go near it and find that instead of seeing the other side of a book we see only a colored picture on cardboard, we say at once that we were deceived, and imply thereby that in calling the object a book we should upon approaching it get a particular visual perception. Again, if steadily looking at the book it suddenly disappears from view and a box takes its place, we say that we must have had an illusion, clearly implying thereby that our statement meant no such occurrence as the sudden disappearance of the book. Thus, if we examine our knowledge, we shall find that the relations therein asserted always imply possible future perceptions, and that in any given case these perceptions are indefinite in number.

Now can we define these future perceptions? What are they? As we have said, they form, when examined, nothing more nor less than the complete proof of our assertion. In short, to say an object is a house, a dog, the moon, to say that man has evolved from lower types of life, or to make any similar statement, is but to assert the possibility of certain future perceptions, and these perceptions are what we call the proof. *That is, knowledge is the assertion of its own complete proof, and this complete proof is always sought in perception.*

We have now found the full significance of our definition of knowledge and the injustice of the charge made against knowledge by the extreme relativists. It is true that knowledge is a system of relations, but the office fulfilled by each of these relations is the prediction of facts. Not only does knowledge have ever before it the object or fact that it is interpreting, but it does no more than to predict facts when it asserts of the given object the relations that hold between that object and other objects. The whole system of relations is, in short, an appeal to facts, and nowhere does it cease to be an appeal to facts. The whole work of knowledge is to reveal perfectly the world of facts, the facts not only of the present but of the past and future, and to order these facts in such a way that they may be of greatest service to man. In any given case, the full meaning of an assertion is to be found by stating explicitly the perceptions that it implicitly predicts. These form the complete proof of the assertion, and they do form the complete proof only because the assertion itself was nothing more or less than their prediction.

Proof is, then, always to be found in present and future perceptions. But why in perceptions? Because in perception we get nearest to the facts. True, perception is itself knowledge, and therefore needs itself proof or justification. This forces us to verify one perception by another, and that by another, and so on indefinitely. As a result, the work of proof in all knowledge is an endless process. But the proof itself that is sought is always sought by an appeal through perception to the facts. Wherever we are satisfied that our perception correctly interprets the facts, we accept it as equivalent to the fact, and take it as so much final proof. Thus in practice, when we have taken hold of the book, opened it, and read in it, we are entirely satisfied that our knowledge of it as a book was true. Theoretically, however, we have not completely proved it to be a book until every fact in the universe implied in our assertion has been appealed to, and such an appeal means an endless series of perceptions.

Thus we are forced to be satisfied with probability. However, this is in no way a just charge against the validity of knowledge.

To sum all this up as a conclusion, we get the following: To know, is to bring order into the chaos of facts given us. This we do by asserting of the facts certain laws. These laws assert that always under given conditions certain events will happen. The proof, therefore, of knowledge consists in the actual occurrence of the predicted event, and this means an appeal to future facts. But to interpret a fact by asserting of it a law means to affirm an eternal verity, for our law must hold throughout all time. Therefore our assertion can be completely proved only by an appeal to all time. But an appeal to all time requires a search for proof that is itself endless; in short, any instance of knowledge is, directly or indirectly, an assertion about all the facts in the universe, for there dare not be one fact in the whole universe and throughout all time that contradicts our assertion. If there is, our law is false or needs modification. Consequently, the complete proof of knowledge cannot be attained by the finite mind. *The finite mind is forced to be satisfied with probability.*

None the less, knowledge as a whole is an appeal to the facts. It asserts nothing except what it claims is supported by facts. As such, knowledge is valid. As finite minds, we may be obliged to search indefinitely for the facts that form the complete proof of our knowledge. This, however, is not a theoretical but only a practical difficulty. Knowledge as such appeals to the facts; even though knowledge presents to man an ideal that he can but partially realize. The facts, however, are there. All that is lacking is the ability of the finite man to accomplish the ideal his knowledge demands. This ideal is the complete interpretation of all the facts of the universe by comparing them and by placing each fact where it belongs in the system of knowledge.

But as the facts in such a system of knowledge are infinite in number, so also is the task of their interpretation infinite. This in no way militates against the validity of knowledge. It shows only that its task, to be completed, would require an intelligence also that is infinite. It shows that the finite mind must be satisfied with probabilities.

CHAPTER XLII

THE TRANSCENDENT ELEMENT IN KNOWLEDGE AND ITS VALIDITY

To continue our argument:

Does not knowledge always go beyond its premises, and is it not therefore inconsistent?

From the discussion that has gone before we have learned how knowledge looks into the past and future and predicates of the present fact the law of its future existence. But why may we go beyond the present at all? Are we not tied down to the facts as directly revealed here and now? From the formal principles of knowledge taught us in logic, no conclusion dare contain new matter or go beyond the information granted in the premises. To do so is to be guilty of a *non sequitur.* Now these principles are ultimate and must be accepted, for to compare without obeying these principles would really be to make an absurd or fallacious comparison. But if any individual judgment must keep true to these rules in order to be valid, it is a very serious charge to say that knowledge as such is always untrue to them. Does knowledge, then, contain an element out of harmony with the very principles of knowledge?

Now an examination of knowledge does seem to show the presence of a real difficulty. (In our comparison of one fact with another, we assert not merely what is given us in the present, or in our premises, for example, that the two objects are alike, but also that they will always prove alike, that both possess, in as far as they are alike, the same law of existence.) In so doing we are predicting what will be the conduct of our object for all time to come. But its future conduct is not given us in the present, that is, at the time we make our assertion. Hence, it must be that we are going beyond our premises when we include the future in our inference. Still we always do include the future, and so we always go beyond our premises. This is contrary to the laws of reasoning. Therefore, says the skeptic, knowledge is not valid.

Thus we are brought face to face with a new problem. Can the validity of knowledge be shown, can we prove that knowledge in interpreting the world does not go beyond its premises, but remains always true to the laws of reasoning? Knowledge seems to go beyond its premises. If what seems true, be true, then knowledge is invalid. Therefore, if knowledge prove to be valid, it must be because its premises are shown to contain more than the skeptic claims they do.

Our method of showing this may seem strange at first, but further thought will make evident its reasonableness. We grant that the skeptic is right in maintaining that additional premises must be furnished knowledge before the conclusions knowledge is always drawing can be justified. But where are we to get these premises? That is the rub. Our reply is: We have to grant them to knowledge, because not to do so would be to make us skeptics, and skepticism we shall show to be an absurdity.

Reply: Knowledge does do so, but must be granted the right so to do;

The programme of our argument is as follows: If skepticism were right, the world would be unknowable. This is absurd. But the world is unknowable unless we grant as ultimate premises all that knowledge is forced to presuppose about the world. These presuppositions of knowledge, which we shall study later, are the Material Principles of Knowledge, or the Principles of Reality, and are necessarily true.

First, then, let us ask: Is the world knowable, or is the position that it is not tenable?

In answering skepticism let us ask first the simple question whether or not the skeptic brings his attack against all our knowledge or only against some of it. If against

for the resulting skepticism is untenable,

since it would be rational suicide.

all, then that very knowledge that even he claims to have is untrustworthy. If so, we do not have to answer him. In fact, we cannot answer him. But the truth is, he does claim to know something, because he wants us to believe him. Then, too, his own daily life indicates quite clearly that he trusts his knowledge in many ways. But to make our reply more deadly yet: in his own life he must trust either his knowledge of the world or his belief that that knowledge is untrustworthy. If he do either he contradicts his skepticism. In short, his knowledge commits suicide. Moreover, as he raises a theory against us, we are forced, if we answer him at all, to offer some knowledge as an argument. Yet by hypothesis he will not accept any knowledge. Therefore we are unable to meet his arguments. If they are knowledge, we are not to take them seriously; if they are not, we should refuse to argue further. If we argue seriously, we do so against a man that refuses from the nature of the case to be argued with. Hence for us skepticism does not exist as a possibly tenable knowledge. As knowledge it is just as little a form with which we can deal as the ravings of a madman. As a knowing being the skeptic has committed suicide. In fact he has thus saved us the trouble of dealing with him. The truth of the matter is this: to hold any theory seriously, to claim for any opinion a hearing, means that you do believe, you do trust, what you have to say. It means that you are not a skeptic, but claim to know something at least. This in no way asserts that all knowledge is true. Perhaps most we know does need all manner of revision and correction. Still the fact that there is such a thing as justifiable knowledge, valid knowledge, at once removes for us this ultimate skepticism.

Thus we reach the following results. To ask knowledge to justify itself in this ultimate way is to raise a question entirely beyond debate. It is to talk nonsense.

You ask *where* should we be, did we jump outside of space; but the very question tells us we should be in space. You ask us how knowledge is possible, how knowledge is justifiable; but your very question admits knowledge to be both. Did we in turn undertake to prove it, we should be arguing in a circle, because to undertake to prove anything is to assume the very conclusion you ask us to establish. The answer to the skeptic is, therefore, not to prove ourselves right, but to show him that his question is mere nonsense.

Ultimately, then, we must grant the validity of knowledge;

No matter where we begin, there always goes before us as the very logical condition of our beginning at all, the validity of knowledge, or the knowability of the world in some degree. For us all it is a premise; a premise we can neither prove nor question. To do either is to argue in a circle. It is truth, absolute truth, unquestionable truth. Hence, one of the very first truths we learn concerning knowledge is that as such it presupposes premises, or at least one premise, the knowableness of the world.

But what do we mean by the knowableness of the world? We mean that there is a harmony between knowledge and reality. We mean that when knowledge is true, that is, obeys all her canons, is consistent with itself in everything, that then knowledge is a valid interpretation of the world.

But do we not mean more than this? Do we not even go to the length of asserting that every presupposition of knowledge is as such a valid and unquestionable interpretation of reality? Reality as such is a knowable world, at least as far as knowledge must assume that we know it. Knowledge must be granted its presuppositions. Whatever be its ultimate laws, whatever be its ultimate and necessary character; it assumes that not only these laws, but also that this character in no way hinders it from being a valid interpretation of reality. Quite the contrary, *reality is just that which both these laws and that character say it is.*

Thus we come to the final thesis of our chapter. To study the nature of knowledge, to consider her premises, is after all but working out the nature of the world as presupposed by knowledge. This presupposition of knowledge we have to accept as valid. In short, we are from the nature of the case working out an ultimately indisputable, though, to be sure, incomplete, interpretation of the world.

and this means, we must grant knowledge all the extra premises that are needed to make it self-consistent. These premises form the Principles of Reality, or the world as presupposed by knowledge.

We have now seen that the position of the absolute skeptic is untenable. *The world is knowable.* This is our First Axiom of Knowledge. But if the world be knowable, we had at once to grant a second axiom. *Knowledge cannot be invalid as a process.* Now what did this mean? *It meant that whatever premises knowledge needs in order to do her work must be granted her from the start. If we do not grant them, we are at once forced back into the ranks of absolute skepticism.*

Thus our second axiom of knowledge will run: —

From the knowability of the world it follows that knowledge must be granted all that is necessary to make it as an interpretation of the world possible. Hence our next question will be: What must be granted knowledge as ultimate premises in order that the interpretation of the world will be a possibility? What are these Material Principles of Knowledge or Principles of Reality?

In answering this question in the following chapter we shall find that philosophers differ in opinion, and that these differences of opinion divide them into two great schools, — the Empiricists and the Rationalists.

III. THE WORLD AS PRESUPPOSED BY KNOWLEDGE

CHAPTER XLIII

THE PREMISES OF KNOWLEDGE, OR RATIONALISM *vs.* EMPIRICISM[1]

Empiricism and Rationalism.

KNOWLEDGE or judgment is an assertion; that is, it claims validity for itself, it presupposes a justification for all its predication. Our present problem is: Wherein does this justification consist?

The question has been answered in two ways, and the resulting theories are called Empiricism and Rationalism. Empiricism claims that facts themselves form the only justification for the interpretation of the facts. In short, all knowledge is but the prediction of facts, and as a prediction it needs no further justification than the facts themselves when the time of their coming is present. Rationalism finds involved in our knowledge implications that the facts themselves can never justify. Therefore to justify these implications we must appeal to principles. A principle is self-evident knowledge, or knowledge that needs no further justification than our insight. Rationalism agrees in part with empiricism, that is, in as far as both theories regard the facts as the chief element of proof. They differ the one by affirming, the other by denying, that the facts form the full justification, or proof.

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[1] The great school of empiricism has been that in England, from Locke down to recent writers, notably John Stuart Mill. Cf. Weber's and Windelband's Histories, on English Philosophy.

An Examination of Empiricism.

Let us see first how empiricism would enable knowledge to gain its acquittal from the charge entered by skepticism.

According to empiricism all assertions are only probabilities.

In knowing any object, as we have seen, we predicate of it some one of the many eternal laws of its existence; that is, we go beyond the present and assert its future life, therefore its as yet unrevealed life. What rational right have we to do this? Empiricism answers: In predicting the law of the future, we assert the law not as something we know with surety, but solely as something probable. When I call this object a piece of paper, I assert that if you hold a lighted match to it, it will *probably* burn. Again, *I do not say with absolute certainty* that to-morrow's sun will rise. This I know merely as a probability. Only to-morrow itself will reveal to me with surety whether or not my prediction was true. Nothing I know in the present is known with any complete surety, for only the future itself can give that.

But what is a probability; and how dare we claim even this for our assertion, if only the present facts are given us as premises?

But we may ask the empiricist how he comes to know that to-morrow's sunrise or anything else is a probability? He replies: It is such, because through an indefinite past experience things like what I call "day" have always become "night," and afterward "day" again. We know the future as a probability by judging what things have been. Every piece of ice that I have put near a hot fire has melted; therefore, every piece will henceforth probably do the same thing. The child that puts its hand into the fire, gets burnt, henceforth it shuns the fire, believing that what has once happened will under like conditions happen again. The whipped dog crawls under the sofa when he sees the raised whip. Why should he? Clearly because he should fear that the consequences of a blow will next time be just as painful as last time. So in our daily life, we come to know how things act by watching them and by expecting to see them continue to act just as they have done. In case they do not act as they formerly did, we at once inquire, What can be the matter? For example, if we have some engine and it does not work, we at once commence to overhaul it, and unless we find some part out of the usual order, we are very much surprised. In fact, we should never rest satisfied until we had found something out of order. In other words, we should maintain that did the engine not work, it must be out of order, or that were it in order, it would work the same as ever.

But notice carefully how we are here led into a new problem. What is our empiricist saying? *Things always continue to act or do as they have done, provided they themselves have not changed,* or, as we may say, "are not out of order." If the fire burns once, it will always burn under the same conditions. If the ice melts once, it will always do so again, provided we get the same kind of ice and put it just as near to just as hot a fire, and so on. Or stated as an abstract law, *things always act the same under the same conditions.* But then our empiricist is assuming as a premise this general law which goes along with his knowledge just as our shadow runs along with us as we walk. We are constantly falling back on this law to justify us, whenever we predict, in fact, whenever we interpret. But if we do this, is not our law of uniformity, as it is called, an axiom?

This we ask the empiricist. However, he is too sly to admit it; for if he did, he would have to give up his empiricism and be a rationalist. So he tries some other means of escape that will not force him to yield his general position. He tells us: "This law of uniformity is itself nothing but a probability in which we have come to believe; because, no matter where we look carefully and adequately, we shall find it to have obtained. In all the past experience of our race things have always acted in the same way under the same conditions; and therefore" — Hold! Do not tell us that they always will do so, for whence the information? True, they always have done so; but if you say they always will, because things under the like conditions act the same, you are guilty of a *circulus in probando.* Or if you say, because they have done so they always will, you are guilty of a *non sequitur.* In the former case you are leading us around in a circle. *a* is true because *b* is; and *b* is true because *a* is. Or in the latter case, "has been" means "has been," and not "will be." "Will be" means "will be," and not "has been." To deduce one from the other would be to throw overboard the simplest rules of logic. If we may go beyond our premises in this way, why, what under the sun can we not prove?

Thus it comes out: we intrust ourselves to the hands of the empiricist; and he leads us along very well for a time and all looks auspicious, until, first thing we know, we stand on the brink of a precipice where one step farther means rational annihilation. If we refuse to take the step forward and look about to see where safety is to be found, we shall see but one escape. We must accept his law of uniformity as an axiom, as self-evident, as true on the face of it. Then we have avoided the precipice, but we are henceforth no longer his followers, we are rationalists.

Thus to sum up, we may give the following argument in outline as the position rationalism maintains against empiricism and as the means it employs to overthrow the latter doctrine.

Summary of the foregoing.

The empiricist has shown us that when he interprets a given fact, he relates this fact to all other facts. Quite true. But how does he do so? Ultimately by predicting that the facts forming his so-called proof will exist. What right has he to make this prediction? From the premises as accepted by the empiricist he has no logical justification for his prediction. All that his premises contain are the given facts of the present, and the facts he can rightly claim to have belonged to the past. But where in all these facts lies the information of what will be? The empiricist replies that he is able to predict the future because he has discovered that the events of the past obey the law of causation. That is, as far as his experience informs him, the same event or system of events is always followed by the same effect. Thus he comes to hold the law that there is throughout the realm of nature a uniformity of sequence among events. To this, however, a ready reply is made. Granting that your experience does show such a uniformity to have existed thus far, by what right are you justified in holding to its continued existence? Here empiricism breaks down. The facts tell each its own content, but they in no way warrant us in finding in them more than their own content. That is, each has his own story to tell, and refuses absolutely to tell the story of any other fact. Therefore the empiricist is guilty of a logical fallacy. He is reading into his facts more than is contained there. If he keeps absolutely to his premises, each fact would be isolated from every other fact, and could not be brought into relation to it. Knowledge as a comparison of one fact with all other facts would become an impossibility for two reasons. First, the only facts given us are *present* facts. Secondly, the past is known through the present, and the method by which it is known is one in which we go *beyond the present.* So also the future. It can be known by us only through some means that will warrant us in assuming what the future will bring. Thus without any means of going beyond the given facts of the present, the empiricist is not warranted in relating the present to the past or to the future. Knowledge crumbles to pieces, and we have now before us an undisguised skepticism.

Thus we are forced to adopt some form of rationalism.

But how does rationalism fare any better than empiricism? Rationalism claims that knowledge presupposes in all its operations those laws which as premises will give validity to the conclusion. We must accept either of two positions, either that we have premises giving us sufficient information to draw the conclusions which knowledge is obliged to draw, or that we have not these premises. The latter position leads to skepticism, which to rationalism is a *reductio ad absurdum.* In short, rationalism claims knowledge as such presupposes certain laws that cannot be proved, because to prove them we should have to assume them. They are accepted by us on their face value, they are in truth self-evident.

To all this may we not object: How dare knowledge trust its insight so far? Rationalism replies: In doing so we are in no way trusting knowledge differently than we do in accepting the facts as revealed to us. Our insight or intuition is the final court of appeal to determine what is fact and what is not. So, also, here our intuition is the final court of appeal. To doubt its verdict would be the same as doubting the facts revealed to our minds. It would be the rejection not only of all interpretation, but even of the object of our interpretation.

Our next problem will then be to determine the premises rationalism thus claims to be presupposed.

In this discussion we have taken but one principle whose denial causes the empiricist very serious trouble. We might have taken others that we shall attempt to formulate farther on. However, the law of uniformity is the best selection, for it represents the great historical corner into which the empiricist has pushed himself or has been pushed by others. Hence, we may conclude: If we are forced to hold that one axiom at least must be accepted, we have proved the one exception that contradicts the opponent's conclusion. Empiricism is contradicted, therefore its contradictory, or rationalism in some form, is valid.[1]

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[1] From the doctrine of rationalism it follows that there can be no ultimate difference between deductive and inductive reasoning. We dare not rationally draw a conclusion for which we have not full justification. But if we have full justification this must consist of premises that warrant the conclusion, exactly as in deduction. Hence we have but the one ultimate form of reasoning, and deduction and induction can, as types of reasoning, be but modifications of this one form. However, to pursue this question farther belongs to a treatise and not to an elementary book.

Still we must not stop with a mere disproof of empiricism. If we accept the rationalist's position, it makes us responsible for the working out of all the premises, or axioms, presupposed by knowledge in its attempt to interpret the world. These axioms will form an *a priori* interpretation of the world; or, otherwise expressed, knowledge starts out with some knowledge of the world that it is to interpret. This knowledge we must now seek to discover by reflective analysis.

The following four chapters are devoted to answering this exceedingly difficult question. Fearing that the beginner may find their arguments very abstruse, I shall give here a short summary of what the world is as presupposed by knowledge.

First, the world is made up of the facts that are revealed to our minds through our perceptions. Some thinkers (the realists) have thought, and many still believe, that there is a world beyond, above, or behind this world that you and I can see and touch, a transcendent world. We shall try to disprove any such doctrine and shall stoutly maintain that there is nothing in the universe whatsoever that does not admit of being perceived (idealism), that the belief in a world not thus admitting of being experienced by us is nonsense.

Secondly, some thinkers who have admitted this conclusion have said that all the facts that you and I perceive are, after all, nothing but perceptions in our minds. From the very nature of our statement that all facts are given us through perception, they have concluded that the facts themselves are nothing more or less than our perceptions.[1]

However, did we accept this conclusion, we should have to admit the absurd consequence that each man's mental states constitute the whole universe. No, the world of facts is revealed to us by perception, but it is not to be identified with mental states in us or with aught else that makes up only a part of the universe. The universe of facts is indescribable except as we interpret it by interpreting the individual facts that it includes.

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[1] The reader will remember that Berkeley taught this particular doctrine.

This question settled, we turn to the question finally at issue: What are the Principles of Reality, the presuppositions about the world made by knowledge in attempting to interpret it. One of these presuppositions, namely, the law of uniformity (including the law of causation and that of repetition), we have already noticed.

CHAPTER XLIV

THE TRANSCENDENT WORLD, OR REALISM *vs.* IDEALISM[1]

Is there a transcendent world?

We have seen that two answers have been given to the question: What must be granted knowledge as ultimate premises? and that both resulting theories in spite of their difference elsewhere maintain with equal emphasis that all knowledge is a knowledge of facts, that facts at least must be furnished, or granted, otherwise knowledge would be impossible.) Our present problem deals with this world of facts, or the Given. It asks: Does this world of facts make up the sum-total of reality, or are there realities over and above the world of facts? Is there a world that lies beyond, or transcends the world of experience? Is there a transcendent world?

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[1] The terms "realism" and "idealism" have had many meanings. The student will do well to consult Baldwin's Dictionary and also Eisler's under these terms.

Historical Note.

Idealism (in the narrow sense in which we use the term) arose in the criticism of the Kantian doctrine, which taught that there is a transcendent world, but that this world (called by him "things in themselves") is unknowable. Cf. Windelband, History, section 41, and Weber, History, section 63.

Before Kant, both Berkeley and Hume had raised objections against the existence of a transcendent substance. Had Hume been thoroughly consistent, he would have denied the existence of anything but "impressions" and "ideas," or the phenomenal world.

The chief home of realism in modern times was the continent. Its most elaborate and dogmatic systems were those of Descartes, Spinoza, and Leibniz.

At the present time the battle between the two schools is still waging. In Germany, idealism is sometimes called Conscientialism and also the Immanent Philosophy. It is represented by such writers as Schuppe and Rehmke, and in general by the Hegelians.

For further information concerning the different writers and the controversy in question, the student is referred to: Der Realismus und das Transscendenzproblem, von W. Freytag, Halle a. S., 1902; also to the chief Hegelian writers, to T. H. Green, to Edward Caird (The Critical Philosophy of Kant), and other English and American writers of this school.

For information concerning the two great post-Kantian idealists, Fichte and Hegel, probably the best account of their systems is that given by Kuno Fischer in the fifth and seventh volumes of his Geschichte der neueren Philosophie: Fichte's Leben, Werke, und Lehre, 3te Aufl., 1900; Hegel, Leben, Lehre, Werke, 2 Bde., 1901. For further references, cf. Weber and Windelband, Histories, *loc. cit.*

This question has been answered in two ways. Yes and no. Those that reply "yes" are now generally called and are best called Realists; those that reply "no," Idealists.

I. The belief that there is such a world: Realism.

What is the meaning of this problem? and what is the difference between the two schools of thought? Men have felt that the great world about us, the world that we experience in our daily life, is not self-explicable. That is, they maintain that back of it, or as its foundation, there must exist some world to which it owes its being. In other words, the world of facts presupposes a transcendent world that brought it into being and that sustains it. Even when some thinkers have gone to the extreme of declaring that the world of our experience is mere deception, an illusion of the senses, this has not made them give up the belief in a real world. On the contrary, this is but to hold the more firmly that all is not mere deception, that a world of reality exists beyond the deceptive world. But even if the world of experience is not deceptive, it is said to be only the manifestation of the real world, or the way in which the real world appears. It is an illusion if we regard it as a perfect picture of the hidden reality; but it is not an illusion if we interpret it merely as the way in which the hidden reality behind it manifests itself to our minds. Possibly we can get behind these manifestations to the reality that underlies, and know that reality as it is in and for itself, that is, as it really exists, and not merely as it appears to us.

The world of facts is called the world of appearance, or, in the Greek, the world of phenomena. Philosophy has at times held that the hidden world manifested to us in the world of experience can be known; but that to be known it must be known by some higher insight, reason, or the *nous*. Therefore it is called the world of noumena, or the noumenal world.

The sources of this belief.

The tendency to search for a principle to explain change.

Let us examine the reasons that lead men to believe in the existence of this transcendent world. Why cannot the world of experience be interpreted as a complete world in and by itself? Why does it need some other world to account for its existence? First we find changes taking place in the world about us, and we always look for the explanation of these changes in some outside entity that acts upon the changing objects. Again, if we look upon our world as having had a beginning in time, we have to ask what has brought it into being? Then a third difficulty was felt in the ancient world, a difficulty concerning change. It seemed impossible that the self-existent, the true world of being, could undergo changes as does our world, because ultimately if being does undergo change, it must become something other than being. It must, in short, contradict its very nature and pass from something into nothing. So the ancient world looked upon the creative or self-existent world (as opposed to the world of change) as a world demanded by the reason in order to account for change itself.

The same tendency as it appears in the atomic theory.

In modern times there has been an extension of this thought, which is, however, only an extension. Science has sought to analyze the different objects that make up the world into more fundamental objects called atoms. Likewise science has sought to reduce their various activities to forms of atomic motion. Science has sought for some deeper explanation of the great wealth of qualities in the world about us and the many changes in these qualities. She has sought for an explanation of all these in a great world of atoms with their different laws of motion. For some reason she has found this to be the only means of explaining the world. The consequence is that we have no longer one world but two worlds, for nothing could be clearer than that the world of our experience is different from the world portrayed in our atomic system. Thus the world we perceive has been looked upon as existing simply in our minds or for our minds; whereas the real world that exists without us is the world of matter and its motion.

Such doctrines argued to the end make all the material world purely phenomenal.

But even this doctrine has been attacked. For what may be true of one set of qualities, that they exist merely in the mind, might also prove true even of atomic or purely quantitative properties. Perhaps they likewise are but the way in which things appear to us, not the things as they really are. Thus we find among some thinkers the belief that the real world or the transcendent world is altogether different from the world revealed to our consciousness, and that the material world in all its elements is but a world of appearances. The true world is perhaps unknowable to us; but knowable or unknowable, it is very different from the world of appearance, and the world of appearance is made up simply of those mental manifestations in us which are caused by the transcendent acting upon our minds.

It is quite evident that this doctrine teaches that the mind is itself a part of the transcendent world. The mind is acted upon by the transcendent entities; and, being part of the means by which the world of appearance has existence, it is not to be disregarded in explaining that world. In fact, the world of experience has two sources of its existence, and both sources belong of course to the transcendent world. Part of the phenomenal world is the product of the world without acting upon the mind, but part is also the product of the mind itself reacting upon these influences from without.

Summary: The two sources of realism.

We may then roughly say that two reasons have led thinkers to believe in a transcendent world. First, a world without change, or better a world of substance, is needed to explain the phenomenal world and its changes. Second, an examination of the world revealed to our senses shows that it is very different from the true world outside of the mind which gives rise to our perceptions.

Criticism of realism.

The thinkers appealing to the former reason tell us of a world behind the world of phenomena made up of the substance, or the creator and sustainer, of that world. These thinkers we have already answered; for we have shown that any such transcendent substance can help in no way to explain the world. All that we have said in defence of singularism and against pluralism, and all that was maintained in the chapters on cosmogony relating to creation, might now be brought forward as proof that no explanation of the phenomenal world needs to presuppose the existence of a transcendent world. It is true that a changeless world has to be presupposed in our explanation of the world of change; but we have found what this changeless world really is. It is merely a world of abstractions. It is the world of atoms and their laws of motion. It is merely the abstract world of law. It does not exist as an entity behind the world, but it is only a system of laws formulated by our minds to explain or interpret the concrete or real world. These thinkers, therefore, have simply taken the abstract laws that hold of reality and made of them a concrete world existing behind reality. Once more we come upon the tendency of man to exaggerate abstractions into realities.

The second group of believers in the existence of a transcendent world are far more subtle and are, therefore, harder to answer. The world in which we live and move and have our being, according to them, exists only in our minds. It is made up only of our perceptions. Therefore, there must be a world beyond that gives rise to these perceptions.

There are two objections that can be urged against this doctrine. The first is the one that we have already mentioned. If all the world of experience be made up only of our perceptions, then we cannot give any explanation of it except in terms of the laws governing its changes. The substance of such a world would not be transcendent any the more because that world consisted of perceptions than if it consisted of anything else.

The second objection is the flat denial that we can, without contradiction, call the world of facts a world made up only of perceptions in our own minds. This denial is supported by a subtle and very difficult argument. We shall attempt to give it in the following chapter, but for the time being we shall assume it so far as to say that we believe that this doctrine is thoroughly self-contradictory.

However, we do not have to depend upon these foregoing arguments if we want to prove the doctrine of idealism and disprove that of realism. Idealism has its own defence, and one that seems to us quite conclusive.

II. Idealism.

The idealist's defence may be divided into two chief arguments. First, he shows that the transcendent world would be absolutely unknowable, and that the absolutely unknowable cannot be distinguished from a pure zero or nothing whatsoever. Second, he shows that if the transcendent world is unknowable, we can predicate nothing of it. Further, not only can we not predicate anything of the transcendent, but we cannot even apply the term "is" or "exists" to it, for this would involve just the very knowledge that must be denied. The word "exist" has two meanings, and neither of these could be ascribed to the transcendent.

Lacking all data on

The transcendent world would be an unknowable world. The only means by which we can know is our mind; and that our minds may know, the object to be known must be revealed to us. The former statement is self-evident,

which to base a knowledge of the Transcendent, we could not know such a world.

and the latter is nearly so. Of all the instances that might be urged as cases in which we know without having the object known revealed to us, perhaps none would be chosen sooner than that of the blind man knowing light. Does not the blind man know light, but in no way perceive it? We reply. The question is quite ambiguous. In the strict sense in which the instance would be an exception to idealism he does not know light. The blind man is able to perceive some of the properties of light, and these alone are what he knows. He realizes, however, that through it, his fellow-men are able to do things he is not able to do. Further, he can learn the physics of light, but after all that means only that he can picture to himself moving bodies, and these no doubt in the form of touch-images. Again, he can feel the warmth of the sunlight. Thus in many ways he can perceive facts intimately related to light and can palm off a knowledge of them as a knowledge of light, simply because in uncritical moments we mean by a knowledge of light only a knowledge of those complementary facts. But of light itself the blind man has no knowledge whatever.

But sooner or later the whole argument must come down to the question: Whether or not we can know without having in our mind some idea of that which we do know. Evidently to make predication of any subject we must have a subject, and this is saying, only in another way, that our subject must have some positive content or representable value to our minds. To use as a subject that which our minds could in no way picture, would be to have not merely an x for a subject, but not even that. If we let x at any time be the subject of a proposition, we do have some faint idea, at least, what x stands for. It may be a number, or some object more or less like other objects. But a wholly transcendent object can have a possible representation in our minds only as we are able to construct such out of the data of sense. As long as the transcendent is held to be a world more or less like the world of experience, we are able to picture it, at least, to some extent. But if the transcendent is in any way like the world of experience, *we can in so far experience it;* but this would be contrary to our hypothesis. Our hypothesis forces us to hold that the transcendent is quite other than the phenomenal world, and, therefore, we have no data whatever whence we can construct a mental representation of it. Consequently, we can know nothing of it, and we lack entirely not only information, but even a subject of which to assert a predicate. The transcendent is absolutely unknowable.

But the absolutely unknowable cannot be distinguished from a pure zero.

Now further, the absolutely unknowable lacks all means by which we can distinguish it from nothing, or a pure zero. Ordinarily you and I can distinguish any two things that look differently, feel differently, and so on; but in our supposed case we have absolutely no mark of distinction. The pure zero, or nothing, lacks every mark and so does the unknowable. One is nothing whatever, the other is something, yet a something that our mind can in no way represent, in no way deal with. Hence, when it comes to distinguishing it from nothing, we find ourselves wholly at a loss to do so. But what shall we say of something that cannot be distinguished from nothing? All we can say is, that it is sheer nonsense. We are talking about something infinitely more absurd than the people and doings of fairy-land. They at least can in some way be pictured, and we have at least some idea about what we are talking. But in the case of the transcendent, we talk of that of which we know nothing.

We cannot predicate even existence of the transcendent. But though we cannot predicate of a subjectless proposition any quality or relation, can we not predicate even of an unknowable x existence? We cannot.

Two meanings of the term "existence."

There are two possible meanings of the term "exist." This or that exists when amid the facts of the world we can find something to which our description, *i.e.* the "this" or "that," applies. Cæsar exists, if we can find facts to which we can apply the term "Cæsar," that is, to which we can ascribe the intension of the term. We can predicate existence of any object whose description fits the facts; or, in other words, we mean there are such things as our statements describe. The other meaning of the term is but the same looked at from a different point of view. We mean by existence the factual, that is, whatever manifests itself to our minds. A fact, or whatever stands the test of a possible experience, exists.

Neither is applicable to the Transcendent.

Now clearly the transcendent is not such. Granting that we could predicate of it existence, it lacks all for which the term "existence" stands. It does not manifest itself to our senses. But you say, by existence as applied to the transcendent I do not mean what is merely applicable to the world of experience. Then, we reply, you either mean what is applicable to the world of experience or what is not. If it be applicable, then we must hold the transcendent down to the same requirements as we do the facts, before we can ascribe any such term to it. If it be not applicable to the facts, then, as we have shown, it connotes a state of affairs for which we can have no mental representation, either of the whole or of the elements from which it has been constructed. In that case we predicate we know not what. In short, we talk nonsense.

Thus the transcendent world is not only unknowable, but also unthinkable. It is a pure nothing. To say of it even that it exists is to talk nonsense. There is no transcendent world. Reality and the world of facts are synonymous. There are not two worlds, there is but the one world: the Given, or the world apprehended by our minds, the world of experience.

CHAPTER XLV

THE DETERMINATION OF THE GIVEN[1]

Idealism has denied the existence of the Transcendent because we have no evidence of that world.

IDEALISM, we have seen, declares that the Given is the sum-total of reality, that to assert a reality beyond the Given is to posit an absolute zero. If we are to assert the existence of such an entity, it must be upon the basis of some evidence. Now no matter what this evidence may be, it must be part of the Given. It must be a fact to which we can appeal as evidence. If, then, on the basis of such a fact we assert the existence of the transcendent, we are doing nothing more than interpreting the fact, or, if more, committing the fallacy of *non sequitur.* If we keep within the bounds of evidence, we are simply interpreting the fact in question, it may be, of course, by other facts within possible reach, that is, by those which can become facts for us. We are asserting nothing more than the Given, or nothing that cannot be referred to it. If we go beyond the Given, however, and mean by the transcendent something not given, where then is our evidence? We go beyond our premises, and the only escape from committing the fallacy of *non sequitur* is to produce at least some new evidence. But what can this new evidence in turn be but facts? In short, for our assertions we must have evidence, and the only ultimate evidence is facts; therefore all our assertions are but interpretations of our evidence, and any transcending of our evidence is but to wander beyond the reach of all possible knowledge, because beyond the reach of all possible proof.

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[1] The contents of this chapter are taken from my Syllabus of an Introduction to Philosophy.

Further, examination shows that to assert what is beyond all possible proof is to talk nonsense; and this is exactly what the idealist accuses the realist of doing.

This granted, our question becomes, What is the Immanent, or the Given? Two answers:

The first question that arises after once adopting idealism, is: What is the Given? Can we give any positive information about it as a whole? Does our definition of it tell us what it is, or only what it is not? Still otherwise expressed: Is the Given as a whole determinate or indeterminate? At the present day this question seems to be answered in both ways. Some philosophers hold that the Given is determinate; others protest earnestly against this view, holding the Given to be indeterminate.

(a) *The Given is determinate.*

If we grant that the Given is determinate, how shall we describe it? The various answers to this question run: The Given is thought, is sentience, is consciousness.

The Given is "my present consciousness."

Now upon examination we can narrow this determination of the Given considerably. Strictly speaking, we must hold that the ultimate fact is not consciousness in general, but present consciousness, and then again not the consciousness of anybody, but "*my own present consciousness.*" That is, whenever we seek for the facts upon which any judgment ultimately rests, we find that these facts are always elements in "*my own present consciousness.*" If we accept as proof the consciousness of others, we meet with the difficulty that this consciousness is never directly known by us, but is obtained through inference. Thus when a man born blind tells me about colors, but I am unaware that the man is blind, I can be entirely deceived as to what his real consciousness is; for the words he uses may in no way betray the limitations of his perception. Now what is true here in an extreme case, is true in all cases. We are never sure, but are always obliged to infer, what are the facts as revealed to another mind; and we are always obliged to fall back on facts known directly by us to prove these inferences. Proof is then limited to the facts of "my own consciousness."

But is this all? Can "I" use "my" whole conscious life as the ultimate fact upon which all proof is to be based? How about "my" past states of consciousness? They once were, but now exist no longer. Nothing that we can do will bring back the identical states themselves. They are given only through memory, that is, in "my" present consciousness. In short, the past is known to me always in the present, never in the past. If memory, or our present consciousness, tells us about the past, the past is for us no longer fact, it is an inference, and as such needs proof. We trust our memories, but also often distrust them. Clearly, then, we sometimes recognize in practice the need of even more proof than merely the fact of remembering.

But in what can this further proof consist? It cannot consist of past consciousness, for the existence of this as we find needs itself proof. It cannot consist in future consciousness, for this is not yet within reach and therefore cannot be used. It must be present consciousness. Present consciousness gives us facts, and on the basis of these all assertions about the past and future, as well as the present, must rest. Therefore all appeal to ultimate proof must be to facts given in present consciousness, and not only to present consciousness, *but to "my" present consciousness. The Given, therefore, if it be determinate, must be found within the four walls of "my present consciousness."*[1]

Opposed to the view that we are able to determine what the Given is, stands the doctrine that the Given is indeterminate.[1] The only way in which we can determine the Given as a whole is to find some relations or uniformities universally present in the Given, and determine the Given as a whole by positing this uniformity, or law, of it.

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[1] This type of idealism is easily reached by followers of Locke, Berkeley, and Hume. It has been called by some Conscientialism. In Germany, as represented by Schuppe and others, it is called by them Immanent Philosophy. The word "Immanent" is used in opposition to transcendent, or realistic. The Neo-Hegelian and Neo-Kantian idealism tends strongly to regard the Given as determinate, experience or sentience being the name by which it is called. Cf. Bradley, Appearance and Reality, Chapters XIII and XIV.

(b) The Given is indeterminate.

But let us consider the arguments more at length. We have found that the Given means the sum-total of the facts, or, as sometimes expressed, everything within the bounds of a possible experience. Our question will then run: Can we tell what this sum-total of the facts is?

Four possible meanings of the question, "What is this or that?"

Now the idealist has already told us that there is no reality beyond the Given, that the Given and Reality are synonymous. Hence this same question asks: Can we tell what the sum-total of reality is? Here, of course, it would be fatal to the argument to forget that the expression, "What is this thing?" may have more than one meaning. Let us then first see what we mean or may mean by the question.

When we ask what a thing is, we generally mean what are its conferentiæ and differentiæ. We wish to learn the *proximum genus* and the characteristics that differentiate the object in question from other species of the same genus. Thus, when we inquire what is a mammalian, we might get the answer, a mammalian is a vertebrate (*proximum genus*) that gives suck to its young (*differentia*). This is the general meaning of the question, "What is this thing?" If we desire a more elaborate description than a definition gives, this description need not do more than follow the same lines as the definition.

But our question might not mean this. We might feel that we had answered the inquiry by telling of some law or relation present throughout the class or obtaining universally between the class or object and other classes or objects. Thus I might interpret thunder by telling how it always follows lightning. I might describe water by giving its boiling-point. I might tell what is the organic world by referring to its dependence upon the inorganic world for its sustenance.

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[1] Cf. Münsterberg, Psychology and Life, pp. 12–14, and Die Giltigkeit unserer Erkenntniss, u. s. w., Part I.

A third possible interpretation of the question, What is this thing? asks us to give some universal attribute of the thing, an attribute that does not include all its attributes, but one that is at least not possessed by any other object. Thus the power of voluntary action may be possessed by all animals of certain classes. A certain custom may be universally and peculiarly practised by but one race or tribe of men. The building of a certain description of nest may be done by but one species of birds. Certain chemical combinations may be good conductors of electricity. Strictly speaking, in this third possible interpretation, we are giving a sort of differentia; but we need not give the *genus proximum* and we need give only that which in part differentiates the object or class from all others.

A fourth possible meaning would imply that we ask merely for some information concerning the object and not necessarily for any that differentiates the object from all others. Thus, if I ask, Who was Andrew Jackson? the question may be answered by saying that he was a president of the United States. What is a bacillus? A species of bacteria.

We are now prepared to ask in which of these possible meanings is the question, What is the Given? intended to be taken.

Adopting the first meaning, we can find no proximum genus nor differentiæ for the Given. It is the highest concept.

The idealist that holds the Given to be indeterminate takes the question in the first sense, that is, he sees in the problem the question: What is the proximum genus and the differentia of the Given? Further, he accuses the other idealists of taking the question in the same meaning. If the other idealists do hold this view, the indeterminist certainly has the better of the argument. If the Given equal the sum-total of reality, how possibly are we to get a still higher genus? The only way we could do so would be to adopt the categories of the Stoics, *i.e.* divide τὸ τί (anything whatever) into the τὸ μὴ ὄν and the τὸ ὄν (not Being and Being). In this way we could speak of the Given as a species of the "anything" and differentiate it from the "non-being" or the "non-existent." In either case the Given and Being are synonymous, and the only thing from which we can differentiate Being is the non-existent.

In calling the Given consciousness, the other idealists dare not mean by such a term more than Being. If they mean more, they are contradicting their own premises, which make the Given the *summum genus* of existence, and which, therefore, deny it to be a species of a higher genus. Secondly, in applying the word "consciousness" to the Given they take all the ordinary meaning from the word "consciousness" and make it synonymous with "Being in general." Thus any attempt to determine the Given, meaning by "determining," to give the proximum genus and differentiæ, is meaningless, for either it leads to a contradiction or it takes away all meaning except "Being in general" from the term employed.

Then, again, if the Given be the *summum genus*, its extension is infinite, that is, all reality comes under it as a concept. But we find that as the extension of a concept increases, its intension decreases. Now the extension of the *summum genus* is infinite, its intension is therefore zero. But when we assert of anything a concept without intension, we are asserting nothing. In short, our assertion is a truism. The determinate idealist is loudly proclaiming what at first seems much information, but when examined proves to be mere truism. When he calls the Given consciousness, or experience, he is taking from the term all intension, and therefore all positive meaning, and transforming the word into a highest concept. This he seems to do quite unconsciously, because he keeps talking as though he were giving some information about the

Given. As a matter of fact, however, his terminology is worse than meaningless. Worse, because it has the appearance of having intension, whereas every particle of such intension has been surreptitiously removed. Therefore, if we mean this by the determination of the Given, our position is untenable. It is worse; it is absurd.

However, if the other party mean by the determination of the Given one of the remaining interpretations of the question: What is the Given? then this difficulty is avoided. The determination of the Given as a whole may in that case mean: Give some universal law, or uniformity, obtaining throughout all existence.

If we take the question in the third sense, we should then seek for some universal attribute of reality. One such universal attribute is time. That is, the determination of the Given might mean that we regard all reality as having time duration, and that non-duration would mean non-reality.

Still in one sense both must agree. All determination is a determination of the Given; or, the Given is the subject of all predication.

Both parties would agree that all determination is a determination of the Given, and only of the Given. As we shall now proceed to show, the Given is the Subject of all Predication.[1]

This statement, of course, does not mean that our sentences will grammatically have the Given as their subject. Such a proposition is, of course, absurd. It means, however, that every judgment or statement is either true or false. A judgment is true when it agrees with reality, when it interprets reality correctly. It is false when it fails to do so. Therefore if predication be true or false, it must be so because of its claim to be an interpretation of reality. The Given is the reality which is being interpreted, and it is all that we can interpret. The nonentity of the realistic transcendent world was shown in our inability to interpret it or to say anything about it. But we have to limit our proposition on its other side. All interpretation is of the Given as a whole. To interpret a part is but an interpretation of the whole. The interpretation of the part out of all relation to the whole would be to contradict ourselves. If we forget that it is a part, we misrepresent it. If we interpret it as a part, we are interpreting it as a part of the whole. In a word, we are interpreting the whole in part. The idealist then finds in the Given the subject of predication, and he declares that the subject is involved as a whole in all predication. We can then assert as a principle, that if there be knowledge or predication, the Given or reality is known.[1]

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[1] This statement seems at first to have to undergo some modification if we adopt the Stoic classification as above given. In that case, "non-Being" may be the subject of predication, but, of course, only of negation; but an absolute negation is no predication at all. A negation, as such, contains a positive element, is therefore an interpretation of Being. Aristotle defined substance as that which neither is predicated of a subject nor is in a subject. His definition can be applied correctly to the Given. The development of the Aristotelian doctrine of substance to its logical end in Spinoza but shows this more clearly. Spinoza's doctrine of substance and its unity tells us when analyzed little more than that substance is the subject of all predication, or otherwise expressed, reality as a whole is the subject of all predication. *If this be true, and if the Given equal the sum-total of Reality, then the Given is this Universal Subject.*

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[1] The popular doctrine of recent decades, called Agnosticism, is an absurdity if it mean that knowledge fails to interpret ultimate (!) reality, or again, that any sensible question can be asked of reality and not admit of a conceivable answer. But agnosticism, as a rule, means one of two doctrines. It may mean that all knowledge is relative, and that therefore any knowledge of reality except of its relations is impossible. Of course this is true. What other knowledge could we possibly want? To know is to relate. But the objects that we relate are real. Direct apprehension gives us facts, and facts are reality. Hence all that we could desire to do is to know or relate the facts to one another. In this case reality is not some hidden mysterious absolute. If the agnostic means that we can never complete the work of knowledge, that her task is infinite, then, of course, he is right. But why should he then call his doctrine agnosticism? We do know reality in part.

Secondly, agnosticism may mean to tell us that there is a transcendent world, and that such a world must be unknowable. If the idealist is in the right, he has delivered us from this form of agnosticism by showing us that the transcendent world is a nonentity.

CHAPTER XLVI

THE PRINCIPLES OF REALITY

The principles of reality are to be found by the logical analysis of knowledge to find its implications.

We have learned that the world which the mind interprets must be given it as a datum, and that the mind must be granted those ultimate presuppositions about this given world which make up its premises, for without them its work of interpretation would be impossible. We have thus far considered each of these truths, but we have not asked ourselves what these ultimate presuppositions are.

We called them the principles of reality or the *a priori* premises of every interpretation of reality. What are they, and how can they be discovered?

The method of discovery is simple enough to state. No matter what we say or affirm, we always involve ourselves in an indefinite number of implications. Thus, should we in walking through a field find a big bone lying on the turf, and should we remark that it is the thigh-bone of a cow, would not many truths quite foreign to our thoughts be at once implied in our proposition? If it is the thigh-bone of a cow, there once existed the actual living cow, and this bone was once part of that living organism. Once it was supplied with muscles and arteries that fed it and its muscles. Once it was united to other bones. Once this bone was much smaller when the cow was but the calf; and before that, it went through a given embryological development. So on and on we might ravel out of the one statement all the implicated truths, that is, all that the author of the statement would hold true of a cow's thigh-bone. But over and above these general truths that are given us by science and by everyday knowledge, and that are liable to be in one way or another implied in almost everything that we say, there are other truths of even wider, of even universal implication. Clearly the statement, "This is the thigh-bone of a cow," involves very different implications from those involved by the statement, "There yonder is a thistle," or "I believe it will rain this afternoon." But these or any other propositions involve alike the most general of all implications, such, for instance, as we are taught in the rules of logic. You will remember how in the square of opposition we were taught that if any one grants A (the universal affirmative), he at once implies something about the other three types of proposition, E, I, and O (the universal negative and the particular affirmative and negative). Thus if A is true, E is false and also O, whereas I must be true. If A is false, O must be true, and so on.

Such analysis will reveal the material as well as the merely formal implications.

Here, then, we seem to have two quite different sets of implications. There were first what might be called the material implications of our statement. That is, we accepted to begin with certain truths about all thigh-bones of cows; and whenever we called any object a thigh-bone, we at once implied in our statement the many other truths making up our general information. Then, secondly, there were the formal implications. These in no way had to do, as did the others, with our special proposition or the special information we actually had about thigh-bones. They were those general truths about propositions which hold of them irrespective of their contents. In fact, we have already mentioned them and called them the principles of knowledge. They are the principles of identity, contradiction, and excluded middle.

These principles have to be admitted by all, or reasoning would be impossible. In fact, to know means simply to interpret in accordance with these principles. But as we have learned in our controversy with empiricism, besides the mere *formal* principles of logic there are other principles, that is, there are *material* implications of knowledge. In short, in all our statements about the world there are besides the particular material implications, which of course differ from one proposition to the other as their subject-matter changes, universal material implications. They are universal, because no matter what our proposition may be, it will always involve these as its ultimate implications along with the purely formal or logical principles. These material principles are not merely rules knowledge has to obey in order to be logical, but they make up certain truths about the world that our knowledge is interpreting. Just as when I call an object a thigh-bone of a cow, I imply that a cow once existed to whom this bone belonged; so when we make any judgment about any object, we imply that certain ultimate truths must hold of that object: otherwise we should not be able to interpret it at all. Now these ultimate truths are truths about reality, or the world in general; or, which is the same thing, they hold of any conceivable object of our knowledge, which in turn means of any fact. They are universally true. They are *a priori* truths, whereas most other truths not thus ultimately implied are called *a posteriori*.

With this general information about the principles of reality in mind, we can clearly see that the only means by which to discover just what they are, or what is their content, is for us to analyze our knowledge, and by this process of reflection to discover just what implications are involved therein. When we have found propositions that must be implied, that must be granted us as premises or otherwise a knowledge of reality would be impossible; then we shall know that we have discovered the objects of our search. Of course no end of errors may be made by any one searching for these principles. Often we find propositions that seem to be implied, but really are not, or again we may find genuine implications that seem to be ultimate, but are not.

(a) The Principle of Causation. It is a necessary implication of all knowledge.

In our argument against empiricism we have clearly seen that any interpretation of the world presupposes the law of causation[1] as one of its premises. The whole interest that we have in gaining knowledge is that what we know of an object will always continue to hold true of it. If heat melts ice to-day, and to-morrow under the very same conditions fails to do so, then what good would it be to us to know that heat melts ice? Clearly one of the very things we claim of our knowledge is that it holds good from minute to minute, from day to day, and even from eternity to eternity. Once true always true, is the motto of knowledge. Surely if it were not so, every scientific text-book and treatise would have to be rewritten not merely day by day, but minute by minute.

Moreover, there would be a further difficulty equally able to annihilate the possibility of knowledge. How should we dare say even that "heat *now* melts ice"? Besides the heat there are now an indefinite number of other events existing in nature along with the melting ice. But you say: We have been able gradually to eliminate these other happenings, and we find that their absence in no way affects the ice; hence we have concluded that the heat and the melting are causally connected. Very well, but have you done all this in one moment of time, or did you not have to make a number of observations or experiments? Clearly, one instance could not prove it; just because the one instance presents all sorts of other coexisting events and gives you no more than the problem itself. You have to search for other instances that differ in some important way from the first. Only then can you tell whether or not the heat played the part suggested. Look, then, at your *petitio principii!* Unless your law of causation holds from moment to moment, what possible bearing can instance number two have on instance number one? Even though the events coexisting with the second melting be different from those coexisting with the first except in the one respect, the presence of heat, what has that in any way to do with the question? Perhaps any one of these other accompanying events has now become the cause; and though heat is present, it may be quite superfluous. Perhaps the causal law for which you search changes with every instance, and perhaps you are then but trying to find a fairy that at each instant changes her form and the form of all her surroundings.

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[1] It may also be called the Principle of Sufficient Reason.

Therefore, if you do not grant knowledge the law of causation or the principle that, under the same conditions, the same event always happens; not only would all knowledge having any validity for events yet to come be impossible, but even a knowledge of the present instant would be quite out of the question. Knowing the world is an absurdity, unless the world be governed by the law of causation. That doubted, knowledge is impossible, and we become absolute skeptics.

(*b*) The Principle of Repetition. This is a necessary complement of the principle of causation.

But it is not enough that we grant knowledge the law of causation as one of her premises. This law itself would be a quite useless piece of information about the world unless the world were of such a character that the law could be actually applied. We must suppose also that the same conditions actually repeat themselves now and then, otherwise, what possible good would it be to us to know the causal law? It might be forever true that given *a*, *b* will follow; but if *a* never repeats itself, we are no better off than we should be were the law not true. We are in a world that in no way presents itself to us as the world of order or law. Each instant we should have an entirely new world; and as far as our knowledge is concerned it would be not a cosmos, but a chaos. Consequently, when we accept the law of causation as a principle of reality, we are forced not only to maintain its abstract truth, but also its concrete fitness as a premise of knowledge. It must be of service to knowledge, otherwise it were no premise;

and if no premise, then its *a priori* character is at once set aside. Hence, in admitting the truth of the law of causation, we assert at the same time its fitness as a premise for knowledge; and this means, that we presuppose the world to be such that the laws of causation are successively in actual operation. This second principle we have called the Principle of Repetition.[1] It maintains that the world is a uniform world, and that the same sort of events not only are likely to repeat themselves, but actually do do so. In spite of all the changes from moment to moment, there is not an absolutely new order of things; but the old order maintains itself. It is a world of repetition amid change. As we look out upon the world, in spite of the many changes that we do pick out, it is, after all, much the same world from day to day and from century to century. And even though we take great ages such as the lifetime of a solar system, still even such tremendous periods are not a complete change from what went before. Matter and its laws are still such that we can find taking place in the ordered solar system the same processes that took place in the chaotic cosmic dust. Matter, governed by the laws of gravitation, is still at hand. There are still repetitions of the same general mechanical and physical phenomena that you and I see working to-day. Were all this not so, or were not some other uniformities in their place, there would be no theory of the origin of a solar system. Its origin would be for knowledge undiscoverable. We should have before us an event not admitting of a conceivable interpretation; because its laws could not be determined. This statement, of course, does not mean that you and I find repetitions of everything that ever happens in all its details. Still the elements of such an event must repeat themselves; otherwise we could never get beyond a mere wild guess, for verification could not be had. You and I always search for such uniform occurrences; and the very fact that we make it an end of our search, in other words, regard objects as admitting of interpretation, involves us logically in the presupposition that the uniformity is there.

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[1] Some might call it the Principle of the Uniformity of Nature.

(c) The World is a World of Permanence and Change.

But in all this there is involved the presupposition that the world is one of change. Were there no such characteristic to the world as change, clearly the laws of causation would be meaningless. Thus in our very attempt to know the world we assert its changing character. The world is a world of change. But, as we saw in criticizing the doctrine of Heraclitus, a world that is only change would be quite unknowable. Change can be known only by comparing it with the permanent. We might even assert the paradox, a universally changing world would be changeless. Each moment would be known in itself, but that it was different from the preceding moment could not be known unless the preceding moment were in some way present as a standard for comparison. When we float down a quiet stream in an open boat, did we not have the permanent landmarks on the shore to use as a measuring rod, how should we know that we had moved? Thus the changing and the permanent are correlatives; and, consequently, the moment we presuppose the world to be one of change, we are forced to presuppose also that in all its changes there is an unchanging element.

In part we have already seen what this permanent element must be. There must be repetition and uniformity in nature's changes. But the principle of permanence involves further elements. There must be a continuation of some elements from moment to moment as the others change, not merely a repetition. The world must give us the picture of change amid the permanent. But not only does the principle of permanence presuppose an identity from moment to moment in some of the elements of the changing world, but it also includes a second element of permanence. This element is the permanence of the ultimate standards of all comparison. Here we have the justification of such principles as those of the conservation of mass and motion.

(d) The World is one existing in the Past, Present, and Future.

Yet a further presupposition is involved along with those of uniformity and change, and that is: The world is not one eternal present, but is a world of the past, present, and future. Of the past, we say, it is gone; and of the future, it is not as yet. Still both are, for us, equally a part of the real world, and are just as fundamental or absolute as is the present. Of course, the very word "present" is a correlative of past and future; but apart from this implication of our terms, knowledge itself must presuppose the two latter. Causation would be meaningless, could in fact not exist, unless we thus had the time distinctions. Without duration there would be no change or permanence. Thus they all presuppose that the real world is more than what is revealed to our minds in the moment. The world as given or presented to our minds involves, the moment we interpret it, both the world of the past and of the future. The moment it is a world in time, that moment it is more than the present; for speaking absolutely the present can have no duration.

(e) The World is one of Likeness and Difference.

Still another final element is involved along with the law of causation. The world must be not only a uniform world, a world of change and permanence, a world existing in the past, present, and future, but it must also be a world of likeness and difference. If the world were one endless identity not merely from moment to moment, but within each moment, or again, if it were nothing but difference, comparison would be impossible. That knowledge involves necessarily in it a comparison, forces us to find in the very possibility of knowing the world the presupposition of an object that can be compared. The world to be knowable must be a world of likeness and of difference. Were the world all alike, the work of knowledge would be done before it even commenced. Were the world different throughout, there would be no comparing of one element with another. Even the very difference would be unknowable.

Thus we find involved in the very nature of knowledge, in its being the assertion of laws discovered by comparing one thing with another, a series of presuppositions. They are those of causation and uniformity, of change and permanence, of duration and of likeness and difference. The world, then, as presupposed by knowledge, is one in which amid differences there is likeness, and amid change the permanent. It is a world extending on through time, past and future. It is a world in which there are recurrences of what has been and in which all occurrences take place in accordance with the laws of causation.

CHAPTER XLVII

THE PRINCIPLES OF REALITY (*Concluded*)

WE have now studied some of the principles of reality, presupposed by knowledge in interpreting the world. But there still remain even profounder ones for us to discover.

(*f*) The division of the world into Subject and Object.

The first of these is the division of the world into subject and object. The instant we know, we divide the world in two: into the thing known and the knower, that is, into subject and object. The division is truly fundamental and is truly a presupposition, because no matter what instance of knowing we may pick out, this division of the world in two will always be involved. It cannot therefore be the result of knowledge or some conclusion at which we arrive by inference. Did we attempt to infer its truth, the very knowledge by which we made the attempt would already have involved the distinction.

Thus, in the very act of knowledge, the world, or the Given, is divided into subject and object. Hence, one name by which we might call the Given (combining the two terms, object and subject) is Subject-Object. The importance of the term is to emphasize a fundamental truth against which philosophers have been somewhat prone to sin. The world cannot be regarded as identical with the mind that does the knowing. This doctrine, called Solipsism, forgets that object and subject are correlatives, and that the world which we divide in the very act of knowing into subject and object is neither one of these alone, but is both. On the other hand, we might ignore the subject and regard the whole world as object. This is a fault often charged against naturalism. But the subject cannot be explained out of the object, nor the object out of the subject. They are both equally presupposed. They are both ultimate.

The objection has been raised against knowledge, that it cannot know a world that lies outside of the mind that does the knowing, for how can the mind get beyond its own immediate states? The answer is clear. The ultimate facts are both subject and object;[1] and the division into subject and object is an act implicitly involved in all knowledge. In making this division, knowledge does not transcend the ultimate facts which she is interpreting. She is simply interpreting those very facts, when she speaks of subject and object. The objective world is mixed up by these skeptics with the transcendent world. Of course, were the objective world something that transcends the

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[1] The terms "subjective" and "objective" have several meanings, and this fact leads to much confusion. Often subjective means what is in the mind, and objective what is without the mind. In epistemology, however, this is not their meaning. The object includes the mind as well as the material world, for both may be objects of knowledge. The objective world means, therefore, simply the known world or the world that we try to know. Those thinkers, however, who tend to identify the Given, or the facts directly revealed to the subject, with our mental states, can easily be misled into asking whether or not an objective world (a world lying beyond those mental states) can be known? This question simply shows how absurd it is to speak of the ultimate facts as mental facts. Were they such, we could know only mental states; and an objective (in the sense of being without the mind) world would be transcendent and unknowable. For a further discussion of this difficult question I must refer the reader again to my monograph, Die Giltigkeit unserer Erkenntniss der objektiven Welt.

One further meaning of the terms "objective" and "subjective" should be noticed. Subjective is applied to our illusions and also to views that claim to be no more than a description of our own feelings or mental attitude toward objects. Whereas objective is applied to all things that admit of being constantly perceived not only by ourselves, but by others, and also to whatever mental attitude or feelings we require others to adopt or claim that they should adopt. Otherwise expressed, subjective means personal, particular, whereas objective means universal, valid for all men. Cf. Chapter LIV.

Given; then indeed, as we have already seen, it would be unknowable. But the division of the Given into subject and object, in every act of knowledge, involves us in no such going beyond the bounds of our premises.

(g) The division into the Absolute and the Relative.

There are two other ultimate presuppositions, or interpretations of reality, involved implicitly in every act of knowledge. They are the divisions of the world into the Absolute and the Relative, and the Infinite and the Finite. The term "absolute" is used in a number of senses. We mean by it sometimes the creator, or substance of the world. At other times we mean simply the sum-total of reality, the world. But more strictly used it is a correlative of the term, the relative. Likewise the terms "infinite" and "finite" are used in more than one sense.

According to relativism or agnosticism, the Absolute and the Infinite are unknowable.[1] In a sense this is true enough; but the main inference of this theory is quite fallacious and misunderstands the very premises on which it is based.

First of all, the absolute and the infinite as described by the relativists are bugbears and nothing else. All that we can mean by the absolute and the infinite is the Given, or the data of knowledge. We can look at the facts from two points of view: from the one we may call them the absolute, from another the infinite; but ultimately we mean by both only the Given. If we regard any object simply as existing, but in no way interpreted, we behold the absolute. That is, the absolute is the name for "*only its reality.*" The absolute is the real or existing object considered apart from all knowledge of it. Another way of putting this would be: If any object were presented to our minds, and we knew absolutely nothing about it, we should apprehend the absolute. In other words, the relativist is simply complaining that we cannot know the absolute except to know something about it. Let us thank our stars that we cannot. Do our best, we cannot be so ignorant of the facts presented to our minds as to stare at them utterly unable in any way to know them. The relativist tells us to know is to know about. True, it is. Therefore you cannot know without knowing about. True again. But to know the absolute would be to know something about it. True likewise. Therefore to know something about it would make it at once the relative. Yes, verily. But what a mighty battle of mere words! We do know the absolute. (The term "the relative" means simply "knowing the absolute"; and of course we cannot know the absolute without knowing the relative. They are not two things, but two names for the same thing. The absolute is the reality in no way known, the relative is the same reality known.)

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[1] Cf. Spencer, First Principles, Part I., Chapter IV.

(h) The Infinite and the Finite.

Likewise the term "infinite" is a bugbear. "We cannot know the infinite." The term "infinite" has two quite distinct meanings. It may mean the Given, or it may refer to another element present in all knowledge.

Whenever we know, or interpret, we always divide the world up into parts or limit the object of our knowledge. We never attempt at one jump, as it were, to interpret all there is to interpret. If you and I look out upon some landscape, what we see before us is not an undivided whole, but here a hill, there a tree, here rocks, there a meadow and a road, and so on. We never behold the world as a totality not made up of parts, but always as a series of individual objects. Now, reader, could you and I stand and stare at this landscape till we got into some sort of half-trance, in which the different objects were no longer different objects, but in which the sum-total of the presented facts had fused together into one quite chaotic whole, you and I should see the Infinite. In short, (the infinite from this point of view means simply the Given in no way divided up into parts.) It is the unlimited, the undivided. It is like the absolute; it is simply one way of looking at the Given. Clearly in this sense we do know the infinite or that which is infinite.

The other meaning of the term "infinite," and it is in this sense that we say our knowledge is finite, may be stated as follows: Whenever we know, we relate; but take any object you will, we never know it so well that we feel we know all about it, all that there is for us to know. Thus any object is always a source of new problems. Or we might put it thus: The more we know, the less we feel we know. To know means always to have new questions arise, hence we never complete the work of knowing and never can. Hence no matter where we approach reality, no matter how simple and commonplace the object may be that we are knowing, the work of knowing it is never a finished task. The more we know about it, the more new questions arise, and the more we feel forced to know. In short, we say only an infinite mind could know about any one object all there is to be known. What, then, does the word "infinite" mean as applied to the world? It means, first, that to know the world perfectly is an endless task, and, secondly, that any object which we may know is always only a part of the world and is known solely by relating it to the other parts, and these parts are countless. Thus there is always a world beyond the world that we know. This fact makes us call the world infinite, and makes us say we cannot know the infinite. Clearly, it would be better to say our knowledge is finite, but to be perfect knowledge it would have to be infinite.

But both sets of terms, "the absolute and the relative," "the infinite and the finite," denote presuppositions of our knowledge. To interpret means to interpret reality; but inasmuch as to interpret is only to assert relations, there must be involved, besides the mere interpretation as such, the reality of which the relations hold true. In short, we can always find involved in knowledge the two elements, the reality and the interpretation that holds of the reality.

Likewise the terms "infinite" and "finite." Inasmuch as all interpretation is a limitation of the reality known, there is presupposed that which is unlimited, or that of which the limitation holds. As the reader should see, this is only saying that in every interpretation there is involved the knowledge and the thing known, or as we have called it, the Given. Thus the infinite and absolute are but two ways of looking at the facts themselves, — the facts apart from their interpretation, or from any knowledge of them.[1]

The attempt to gain from these presuppositions a view of the World in the totality of its being.

These questions answered, we pass to what is certainly the profoundest question that the mind of man can put to itself. Are we able to form any picture of reality in the sum-total of its being? From what has been said, we do surely know reality or else we know nothing at all; but it was equally clear that we know reality only in part. As finite minds we never complete the task of knowing the world. Not only, as we have seen over and over again, are we limited within every field of human research, but we are limited from the very nature of our knowledge which sets over against the finite the infinite, and causes our knowledge to be ever a finite one.

If we are limited then to knowing reality only in part, how can we in any way gain a picture of reality in its infinitude? The only answer that can be made to this question we have already given. In an *a priori* way alone is such a knowledge possible; and the principles of reality as such form the sum-total of this knowledge. The picture they give of reality in its infinitude is meagre indeed; but then a moment's thought would lead us to expect nothing else. They do not give the concrete story of reality that you and I seek in the knowledge of daily life. They give only those ultimate presuppositions or conditions of knowledge that alone make it possible. They do not furnish us the results of knowledge, but merely the bare formal outline, as it were, that knowledge is afterward to fill in. Yet bare and abstract as is such a principle, it is surely information, and is surely information about the universe in its totality. Certainly, then, man's reason is to be justified in trying to drag out of these few *a priori* pieces of knowledge every particle of information that can possibly be obtained from them. Still, logically, it is most dangerous work. We are liable to use words that have a narrow and definite meaning and apply them to the universe without noticing that in so doing we quite misuse or rather set aside their old signification. Let us turn our attention to the problem, but let us be very cautious.

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[1] All this is, I know, very dogmatically stated; but to discuss the question properly requires space. In fact the problem belongs to a treatise and not to an elementary book. However, the reader is sure to come upon this question in the course of general reading, and hence it demanded at least a brief answer here.

Reality is both Subject and Object, and in this sense may be called the Universal Mind.

As we have seen, reality is somehow nct merely the object of knowledge, it is also the subject. This must be to many a hard saying indeed; but as we saw, you and I are dividing reality in two when we speak of subject and object. It would be false to treat it only as object, or only as subject. It is both, it is the subject-object. But what does this exceedingly abstract statement mean? It means this, that the ultimate picture which our minds form of reality dare not be confined merely to the facts that form the object of knowledge, but must include also the interpretation of those facts. When you and I by reflection watch knowledge at her work of telling us what reality is, we never get as a picture merely the object to be interpreted, but also the interpretation. In fact, our very attempt to interpret reality at all shows us that to stop short with the mere fact and go no farther would be to lose something of reality itself. Why otherwise should we strive to know the world, if to know the world were not itself a means of revealing the world to our minds? The complete picture of reality cannot be had by doing away with knowledge, but only by completing the work of knowledge. True, all this is dangerously abstract reasoning, but mark well the clear implication involved in attempting to know at all. Somehow the more we know, if to know be what it claims to be (and we have to accept that claim), the more we know the more truly are you and I in possession of the real. Were this not so, the babe in the cradle would be just as perfectly aware of the world as we are. Somehow the facts have involved in them the story that you and I search to discover, that story we call the knowledge of the world. Thus we may say that knowledge is but a means of bringing out more clearly all that is contained in the facts of the world, or reality itself. Hence it is we have to say, that we cannot divorce the world from the knowledge of the world. Hence it is, too, that the ultimate picture of reality contains in it that ideal of knowledge, the perfect interpretation of the world, or as we otherwise call it, the Truth. Reality involves in it the truth. The truth is the only presupposition that embraces in itself all other presuppositions of knowledge. They are principles of reality, but also of truth. In beginning to interpret we have before us as an implication that very end which we are trying to attain, the truth. When we set out to know the world, we set out also to know the truth. The truth is a perfect realization of the work we set out to do. Of course all that we know of that truth are its principles and so much of it as our finite interpretation has won. Yet it is more than a mere thought or air castle of ours. We do not form it as we build up the scenes of fairyland. It is a necessary implication. It has to be accepted by us. It is of reality, yes, of its very tissue and substance. The ultimate union of reality and truth may then be said to be that picture of the world which the principles of reality afford us. The world in its totality is identical with itself completely and perfectly interpreted, that is, with the truth. Just as the facts are revealed to our minds and interpreted by them; and therefore just as truth for you and for me involves an apprehension of the facts along with their correct interpretation; so also does that ideal of knowledge, the complete truth, involve the universal object and subject, the sum-total of the facts and their complete interpretation.

But can we not picture all this in some better way? The Hegelians seem to have hit the best expression, by calling it the Universal Mind. Mind for you and me involves the apprehension and the interpretation of the facts. That is just what we mean by mind. So the universe at large is the universal mind, that is the sum-total of the facts and their perfect and complete interpretation, or the truth, the ideal toward which we strive in all our knowledge.

But all this exceedingly abstruse reasoning can be stated in a much simpler way. You and I do not mean by the universe merely that part of it which we have seen and known; but when we speak of the universe, we mean what we should perceive and know if our knowledge and power to perceive were infinite and perfect. In other words, the world does not correspond to the picture of it that you and I have, but to the picture of it that you and I would have if we knew all there is to be known — the picture to which you and I, as seekers after truth, try to attain more and more. In short, the universe is pictured completely and perfectly only by the ideal knowledge, the truth. But we may go farther even than this. If our knowledge had reached its ideal, the facts of the world would be so fully apprehended by us, and so perfectly interpreted by us, that we could no longer separate in thought the reality, or the world, from our knowledge of it. In short, as truth becomes more and more perfect, we can begin to identify it more and more with reality; and when it is absolutely perfect, or the truth, it is one and the same with reality or the world it interprets. The universe and the perfect knowledge of the universe are one. It is on this account that the Hegelians call the universe the Absolute or Universal Mind, God.

But abstractions are dangerous, and the term "universal or absolute mind" is of abstractions one of the most abstract. It does not mean a mind like yours or mine, it means rather an ideal that you and I can picture only in the vaguest outline. It is the world perfectly known. It is the truth.

IV. THE MANIFOLD INTERPRETATION OF THE WORLD

CHAPTER XLVIII

THE REAL AND THE IDEAL

Besides knowing, our life is made up of feeling and willing. In fact, these are more truly fundamental elements than is knowledge itself.

ONE great part of our philosophical reflection is now completed. We have studied the knowledge of nature and of mind and have sought out its implications, and then we have studied knowledge itself and its claim to be a knowledge of the world. But now we come to a very different problem. Man is more than a knower, and his life is more than knowledge. Man is one that *wills*, and his life is a struggle to determine what ought to be, and to bring into being what is not. Further, man is one that feels, and his life in every part of it throbs in response to the changing world without and within him. Thus, besides the world of knowledge we have a world of action and of feeling; and these two worlds also must be the objects of our reflection.

At first sight, knowledge is quite distinct from willing and feeling; but reflection soon reveals a relation of closest intimacy. First of all, knowledge itself is not free from a volitional element; for knowing is but one way of acting, and therefore knowledge is as truly a product of our will as are our bodily acts. This truth at once reveals to the reflective mind a new subject for thought, a subject profounder even than knowledge; for back of knowledge lies a deeper part of the self, the will, and profounder than the principles of knowing are the principles of that which governs knowing, the will.

But, again, the mind that knows, not only wills when it knows, but also feels. Knowledge itself does not exist as a purely rational or intellectual mental experience. Knowledge arouses our feelings, and our feelings arouse our knowledge. The world becomes known to us only because it excites our feelings or our interest. The longing for knowledge is the very soul of knowledge.

Thus the real mind of man, the mind that interprets the world, is both a knowing and a feeling mind; and back of both, controlling and directing both, is the profoundest part of all our mental life, the will. In fact, we may look upon the will as the principle uniting knowledge and feeling. And of the two latter, the profounder is feeling, in fact, from one point of view it is itself the profoundest of all. Because knowledge arouses feeling it has a right to be. Feeling without knowledge might well be, but knowledge without feeling would be monstrous. Moreover, knowledge is but the servant of feeling. It gives us the means of satisfying the wonder and curiosity inspired in us by the world, the thirst for knowledge, and also the means, through the laws of causation, of overcoming the obstacles that prevent the satisfying of our longings. Then, too, the will seems very closely connected with feeling, and almost one and the same with it. Perhaps it would not be wrong even to look upon them as one and the same thing viewed from different points. But not to trespass too far upon psychology, and especially upon problems arousing much disputation, let us admit as most reasonable that whatever we call the power determining ultimately the course of our mental stream or the dominance of any given mental content, it is profoundest. It is the ultimate power back of all the mind's work, and in its verdicts we must seek for the ultimate principles that guide all knowledge and all feeling.

We thus have two worlds,

We must now enter upon a study of this world of will and of feeling. We shall call it the world of the Ideal as opposed to the world of the Real.

the Real and the Ideal.

First of all we must try to state clearly just what we mean by the two worlds,—the real and the ideal. *The real is that which is. The ideal is that which ought to be, is that which receives the approval of our will, no matter whether it exists or whether it be only a thought or an idea of that which may exist.* From this it is quite clear that the same thing can be both real and ideal. It is both when that which our wills approve has become apprehended by our minds as actually existing; and then again, it is both when either the past or the future is known by our minds to be in conformity with the ideals of the will. Thus our ideals are whatever our will chooses; but they are not merely acts of will in this narrowest sense. Feeling always enters in. Approval without feeling would somehow be a mere abstraction. Our ideals then have besides that mere element which gives them the name, "acts of will"—another element which makes up the feeling of approval, or reverence for what the will bids to be, or the feeling of satisfaction with what is.

But can the Ideal be dealt with as knowledge?

But a question now arises, because you and I are thinkers or seekers after *truth:* What is the relation between the knowledge of the real and that of the ideal? One thinker might object: "Truth seems to belong to the real, for truth is but the correct interpretation of the real. How, then, can we, as students of truth, have anything to do with the ideal? The ideal represents not knowledge, but an activity of the will expressed in certain feelings of approval or reverence. It is true that knowledge, or judgment, is itself one of the mind's activities, and that therefore knowledge itself admits of realization just as much as anything else. In fact, knowledge, or science in the abstract, is not a reality but an ideal of the mind. It is not something that is, but something that each moment of our lives we are striving to bring into being. Thus the very search for truth is one of the loftiest and profoundest of the mind's ideals. It is true that the ideal somehow lies back of our knowledge of the real; but even though all this be true, what has philosophy to do with the ideal?"

It can, because our ideals are judgments and are therefore knowledge.

It has to do with the ideal, because our ideals can, and ultimately must, be expressed in the form of judgments. Whenever we will to do anything, we are asserting not only that the end in view meets our approval, but that it does so above all other ends that in the moment also lay claim to our consideration. To choose, then, is to assert that our approval and our reverence are given to the end that we have chosen. Of course, we do deeds that we ourselves despise, we do deeds that contradict our better selves; but the same self-contradiction can be pointed out in the field of knowledge also. We say things that are not true, that we know to be false; and in the hour of heated discussion we let our prejudices rather than our love of the truth determine what shall for us be truth.

Thus we may say that when a man wills he makes an assertion. He may contradict himself in so doing, but none the less he tells us that the choice was worthy of its cost and was in harmony with the whole moral creed of the author. In fact, just as you and I hold particular scientific opinions about the world, so do we also hold particular moral and æsthetic beliefs regarding life, its work, and about the world in which we live. All these beliefs are judgments just as truly as are the doctrines of science.

Moreover, what we found to be true of our perceptions is true also of our volitions. Even when they are not judgments literally, they are the equivalent of judgments and as such can be transformed into judgments. If you and I watch the doings of any rational creature even when thought is farthest removed from his mental states, we always feel that they admit of being transformed into judgments that are their equivalents. Thus as I write, each movement of my pen is not a judgment on my part. It is a deed and no more; yet it is more implicitly, if not explicitly. Implicitly it tells that I expect certain results from the movement of the pen, otherwise I should not be writing. It tells that I approve those results, that for the time being they are my ideals. Choose whatever bodily act you wish, you will always find that it has a meaning that you can put into words, or express in the form of a judgment. You know why the deed was done, what result it was to bring about, and you know that this result was somehow implicitly approved by the author of the deed. And this is all just as true, though in the moment the doer was not literally thinking either of the result or of its desirability. Thus our acts, even when they are not accompanied by definite judgments, may be transformed into judgments that are their equivalent, and hence we can conclude that all acts of the will and likewise most feelings are judgments that but express explicitly a meaning contained in them implicitly.

In short, the ideal is also an interpretation of the world.

Since there are also these judgments, we should have defined truth too narrowly had we ignored them, for all judgments as such claim to be true. The difference, therefore, between the real and the ideal, is not that the one is true and that the other lies outside the truth, but that the one interprets the world as it is, has been, or will be, whereas the other interprets it as an object whose events can be modified or acted upon by our wills, and can arouse toward themselves an emotional response in us. There are thus two ways in which the object of knowledge can be interpreted, and we have called the two interpretations the real and the ideal. Our doctrine is a denial of the view that science alone forms an interpretation of the world; and it is a demand that those interpretations springing from man's will and emotional nature be given a place side by side with science in man's endeavor to tell the complete story of the world.[1] This doctrine may be called that of the Manifold Interpretation of Reality.

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[1] The opposing doctrine that denies the existence of any interpretation of the world other than that given by science is called Positivism, and

There are three such interpretations of the ideal.

The question that next naturally arises is: How many such extra-scientific interpretations exist, and what are their names? We shall not here go into a critical discussion of the problem our question raises.[1] Rather let us give the answer generally offered and seemingly rightly offered. Besides science there are three other systematized or formulated interpretations of reality, namely, religion, morality, and art.

The Epistemology of the Ideal.

The philosophy of each of these interpretations will be taken up in the succeeding parts; but the remainder of this chapter will be devoted to the epistemology of the ideal, since this chapter is the last in the theory of knowledge, and therefore belongs to problems falling within that discipline of philosophy. At the same time this chapter is intended to be a connecting link between the philosophy of science or metaphysics, and those other branches of philosophy which treat of the ideal.

The epistemological problems raised are, *the nature and the validity of our judgments concerning the ideal.* Do our judgments concerning the ideal, or does the ideal interpretation of reality, claim to be objective in the same sense as does our knowledge called Science? If it does, is this type of knowledge valid? Hence our two problems, — the nature and the validity of the ideal.

In our previous discussion we have learned that all judgments or interpretations are interpretations of an

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also Naturalism. Cf. Baldwin's Dictionary under both terms. For the general point at issue in this chapter, cf. Sidgwick, Philosophy, its Scope and Relations, London and New York, 1902, Lecture II. As parallel reading we refer the reader to the greater part of Mr. Balfour's book, The Foundations of Belief, 8th ed., New York and London, 1902, especially to the introductory sections and to Part I.

[1] The problem belongs rather to an advanced treatise to discuss. However, we shall try in later chapters to justify somewhat our dogmatic answer.

I. The Nature of the Ideal. These judgments differ in character from those of science, and are objective.

object, and that this object forms always a datum of knowledge. Further, every judgment claims to be true. Its very nature of interpretation would be lost were it not a claimant of truth. Therefore our ideal judgments, like all other judgments, are an interpretation of an object, and what is more, of the same world, the Given. They likewise claim to be true. All this follows without further need of proof from the foregoing chapters. To this extent the ideal judgments are surely like the real judgments. But here a new question enters, Is there ultimately any essential difference between the two classes? Are not the ideal judgments ultimately simply real judgments? We have already maintained that there is such a fundamental difference. It is the difference between *what is* and *what ought to be.* So much is clear enough; but the positivist will remonstrate when we add, our ideals are objective in the same sense in which the doctrines of science are.

Now what do we mean by calling them objective. We mean, that just as we expect our neighbor and all fellow rational beings to accept the doctrines of science when once adequately established, so also do we expect our ideals to be accepted. Our ideals are not something purely subjective, that is, valid for the individual alone, and even for him only on the particular occasion when they are published. We claim that this positivistic doctrine ignores the plainest of facts. We expect men to have day by day the same ideals. We despise a man that is inconsistently changing his life's ideal day by day. Further, we preach our ideals and we try to persuade the evil and the debased to rise to a loftier view and manner of life. We praise the noble and the true and the beautiful; and we consider it a part of every cultured person's education that he should learn to value all these things.

We are not now asking whether or not we have a right to preach our ideals and to despise the debased and the morally inconsistent man. We are simply appealing to the fact that we do preach ideals, and do despise and honor other men's ideals. The whole history of morality, of religion, and of art make up a story flatly contradicting the doctrine that our ideals claim to be merely subjective, merely valid for the moment. Morality, religion, and art would have no history, were such a doctrine true.

In short, the man that denies that our ideals claim to be objectively valid, denies one of the plainest facts in the history of mankind. In the name of their ideals men have preached and labored, have lived and suffered, and have fought and died. Rob history of these facts, and you have annihilated it.

II. The Validity of the Ideal. The Ideal is presupposed in knowledge.

But are our ideal judgments or our ideals valid? The answer to this question we have already indicated in part. Knowledge does not stand alone in man's life, but is only one element besides others, and, what is more, is in subservience to those other elements. We are not merely knowing beings, we also feel and act; and the office of knowledge is to serve as a guide for our actions and as a means to make the world what our feelings would have it. The ultimate authority in life is not the real, but the ideal. Real in this sense is but the servant of the ideal. To know is ultimately itself but one mode in which the ideals of our minds are realizing.

Still there is only one proof of the validity of the ideal. It is the same proof that we have already employed to establish the validity of knowledge, and that is, the impossibility of skepticism.

To deny its validity is to fall back again into the absurdities of absolute Skepticism.

Just as the intellectual skeptic placed himself beyond all possible proof or disproof, in short maintained nonsense and thereby committed rational suicide, so also does the ideal skeptic commit an even more extensive self-destruction. If our wills and that which governs will, our feelings, have no valid right to the judgments that express their ideals, then action is impossible, and even knowledge could not be. Even the skeptic that brings forward his objection against the validity of ideals, by his own objection presupposes their validity; for otherwise every ground for objection and for all action has gone from him. Why does he object unless it is in response to some ideal of his will? Why should we listen to his objection unless that very objection shows that some ideal has been infringed upon? Clearly there can be no other reason.

Our actions of every sort demand ultimately a justification, just as does every tenet of science. But unless we grant our minds the ability to deal with the judgments in question, that is, to make valid judgments, all is in vain. Man's life would at once, if consistent with skepticism, become chaotic. Consistency would instantly cease. The act of one moment would just as likely undo the act of the preceding moment as complement it. Man's life would be living each instant solely for the instant. We could not look forward and with authority dictate the laws that are to govern our life from moment to moment or year to year; for any such law that we set up might be destroyed as having no validity. Any law would do just as well as any other; each, no matter how they contradicted, would have the same right to exist and determine life's course. Clearly such a state of affairs would be chaos; and clearly, too, such would be the legitimate conclusion if we deny the validity of man's ideals.

If there was to be such a thing as a knowledge of the real, we found that skepticism must be ruled out of court. So now we find, if knowledge or any other act of man's will is to be, skepticism denying or questioning the ultimate validity of his ideals must likewise be set aside as nonsense. Knowledge cannot be self-destructive, nor can the will be self-destructive. If the ideal is to be more than mere nonsense, it must have an authority to control the mind just as does the real. To know means order, not chaos. To do means the same. Therefore, both must

Thus the Principles of the Ideal must be granted a

priori as were those of the Real.

have involved in them a right not only to be but to determine what they shall be. Action must be made possible, for inaction is itself impossible. Action must be made valid, or rather the judgments that control action; otherwise action is forced to be self-destructive.

Hence we draw as the very presupposition of action, as the very premise of the will, the axiom that the ideal is just as valid as is the real. The ideal has absolute authority over life. As we drew from the axiom of the knowableness of the world the further axiom that everything must be granted knowledge that is required to make it possible as an interpretation of reality, so now, too, we must draw a similar axiom. If our ideal judgments are valid, then all that must be granted them which alone makes the ideal valid. All necessary presuppositions about the world our ideals are interpreting must be held to be true, true *a priori*. The principles of the ideal must be granted knowledge as premises, just as were the principles of the real.

PART THREE

THE PHILOSOPHY OF RELIGION

CHAPTER XLIX

THE NATURE AND PRINCIPLES OF RELIGION[1]

The differentiation of religion from other forms of knowledge.

THE first question that must be asked and answered, the moment we turn to study a new way in which man interprets the world is: How can this new form of interpretation be differentiated from other forms? What is religion, and how does it differ as an interpretation of reality from other interpretations?

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[1] The philosophy of religion, ethics, and æsthetics, can be treated in this book only with the greatest brevity. The foregoing parts are intended to lead up to the problems of the nature and validity of religion, and to afford the groundwork of their solution. On this account somewhat more room has been given to Part III. The parts devoted to ethics and æsthetics are intended merely to open up the main philosophical problems of both disciplines, and there to leave the subject. The student desiring to study either should read an elementary text-book devoted to the particular discipline.

Historical Note.

The philosophy of religion as a distinct discipline of philosophy dates from Kant. Before his time it was an undifferentiated part of metaphysics. Beginning with the ascendency of Christianity as the religion of the Roman Empire, we find philosophy serving as the handmaiden of religion, and continuing to do so down to the days of the Renascence. During this period the doctors of the Church tried to systematize their faith through philosophy and to formulate a rational apology for the dogmas that they accepted as premises. It was not until the days of the Renascence that science and with it philosophy began to take again an independent place in European culture. But the moment they did so, the dogmas of the Church were no longer premises, but teachings to be criticized and sifted, and there now came a time when an attempt seriously to study religion as such arose. Yet during these centuries it was combined with metaphysics, as such names as theism, atheism, and pantheism suggest. Metaphysics was treated distinctly as an answer to religious problems.

From the theory of knowledge we have learned that the ultimate subject of every judgment, or, to put the same thought differently, the object of every interpretation, is the Given, the world of facts. Hence we must say at once that religion does not differ from other interpretations by having a different world or object to interpret. At first sight this contradicts the popular notion of what religion is; for generally we mean by religion the attempt of man to tell the story of a world other than this in which we live. Religion has to do with the world beyond, with a sort of transcendent world. Science has to do with the world of the *natural*, religion with the world of the *supernatural.*

Have they different objects, the Natural and the Supernatural?

But does religion deal with a supernatural, or transcendent world? And first of all, what do you mean by

The great scientific discoveries, especially astronomical, geographical, and physical, were introducing into modern thought views that seriously conflicted with religious dogmas; and as a result, there was in the seventeenth and eighteenth centuries a marked rebellion against revealed, or orthodox, religion. One very important movement was that of the freethinkers in England and on the Continent during the eighteenth century. In England it was closely connected with the philosophy of Locke and the distinguished school of English moralists of that time, and took chiefly the form of Deism (a combination of the older orthodox view of creation and of God's existence apart from the world with a purely mechanical conception of the universe). Thus it brought religion seemingly into harmony with the mechanical natural philosophy of the day. The student should read Section 35, on Natural Religion, in Windelband's History of Philosophy (page 486), also, in Falckenberg's History of Modern Philosophy, in Chapter V, the section on Deism, and Chapter VI, on the French Enlightenment.

Kant brought a new epoch into existence. After him the philosophy of religion depended not merely upon the theory of knowledge, presupposing it, but also upon the distinction between the real and the ideal. Before him religion was thought to treat of the real; but after him that view became an anachronism.

Kant and the writers after him bring up another problem, one within the philosophy of religion, namely, the problem of the relation of religion to morality. Doubtless they are closely related, but Schleiermacher rightly maintained against the Kantian view, *i.e.* that religion and morality are

(a) The primitive view of the supernatural.

such a world? To the latter question two answers have been given,— a primitive one and a metaphysical one. The primitive and less critical doctrine means by the supernatural a part of the material universe either actually located somewhere on or within the earth, or lying beyond our earth somewhere in the heavens. The supernatural world is a land in which dwell the gods and demigods, the Olympus of Greece, Hades, the Heaven and Hell of the Middle Ages, the Happy Hunting-ground of the Indians; or again, according to still less developed races, spirits or gods have their homes practically everywhere: in the sky, a mountain, in a brook, or a tree, or even a stone or a stick.

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most closely related, a truly independent place for religion. From the text it will be clear that we could go as far as to say that not only morality, but all interpretation of the world, is closely related to religion, in fact, presupposes a religion.

The important writers on the philosophy of religion are among others the following: —

Kant, Die Religion innerhalb der Grenzen der blossen Vernunft. 1793.

Schleiermacher, Reden über die Religion. 1799.

H. Siebeck, Lehrbuch der Religionsphilosophie. Freiburg und Leipzig, 1893.

L. W. E. Rauwenhoff, Religionsphilosophie, translated from the Dutch by J. R. Hanne. Braunschweig, 1889. 2te Aufl. 1894.

James Martineau, A Study of Religion. 2 vols. 2d ed. 1889.

By the same author, The Seat of Authority in Religion. 3d ed. 1891. Also Essays, Reviews, and Addresses. 4 vols. 1890–91.

Edward Caird, The Evolution of Religion. 2 vols. Glasgow, 1893. Also, Book IV, in his The Critical Philosophy of Kant.

J. A. Leighton, Typical Modern Conceptions of God. New York, 1901.

Parallel Reading.

The student desiring further information on the subject-matter of this chapter is urged to read The Varieties of Religious Experience, by William James, New York and London, 1902: also The Foundations of Belief, by A. J. Balfour. Further references are: An Introduction to the Philosophy of Religion, by John Caird. New edition. Glasgow, 1901; and Das Wesen der Religion, etc., von W. Bender, Bonn, 1886. For the history of religion he will find an admirable summary and reference to larger works in History of Religion, by Allan Menzies. New York, 1895.

We need not linger over the criticism of such views of the supernatural, for modern science has long ago given the death-blow to these fancies invented in our race's childhood. The astronomy of Copernicus and Galileo soon transformed the spatially finite world of the Middle Ages into the universe in infinite space, as conceived to-day. In our spatial world, with its sidereal systems stretching on indefinitely in every direction, astronomy can find no room for a material heaven above the sky. Nor can geology find a place in the interior of the earth for a hades. To the modern scientist such a material supernatural world is a fairy story, and as such deserves two sorts of treatment. If it be offered to us as a beautiful fairy tale, handed down from older generations, let us admit all the beauty and poetry it contains, and enjoy it fully. But if it be offered as serious truth, let us brand it at once as an absurdity, and those who believe it as men blinded by tradition. However, to pass from science to philosophy, such a supernatural world, even if it existed, would not be truly supernatural. If there were such a world, or land, or cave, it would be no more and no less than part of our material universe. It would belong to science to discover its whereabouts and describe it to us, as much as it belongs to science to tell us about the sun and planets, the North Pole, and the ocean bottom, the craters of volcanoes, and the earth's interior. If such a world be the world about which religion tells us, then clearly religion is merely a part of science, just as is the geography of the North Pole, or the astronomy of the moon.

A later view.

But perhaps it will be objected, religion deals with a part of the universe that can never be discovered by science or be explored by man. We reply: If, as you say, this world cannot be discovered, why can it not? If you have a reason, it can hardly be other than one of the following. The world of religion is too far away to be seen by the most powerful telescope, or too small to be visible by the most powerful of microscopes, or both. But let the reason be what it may; from what we have learned in the theory of knowledge, we know that such a world, if it be part of the world of facts, must be revealed to us, otherwise it cannot form part of the object of knowledge. If we can gain access to the facts of that world, we are no worse off in attempting to interpret it than we are in attempting to interpret the world of imponderable matter, or of chemical atoms, or again of the interior of the earth. Let that world be what it may in the whole universe of facts; if it is to be interpreted by us, we must have access directly or indirectly to information concerning it, and this in the shape of facts. If we get these facts, science will interpret them. If we do not get them, we cannot interpret such a world as part of the world of facts without being guilty of utter nonsense. If religion is nonsense, then let us away with it forever.

(b) The supernatural identified with the transcendent.

There remains the other view of the supernatural world of religion. Religion is not part of science, because religion interprets a transcendent world, a world lying beyond the facts, a world that as such cannot be revealed to our senses. This doctrine would be a form of realism, and as such we have already dealt with it in the chapter on the problems of the Given. It must stand or fall with the doctrine of realism. The conclusion we reached in that chapter was that realism is at bottom sheer nonsense. Therefore we must conclude that a new way of looking at religion is called for.

Religion has not a different world to interpret, but the same world as has science.

Religion does not differ from science or any other interpretation of reality by having a different object or part of the world to interpret. All interpretation is an interpretation ultimately of the world as a whole; and therefore religion like science interprets all facts. How, then, can religion differ from science?

The difference is in the question

Religion asks and answers different questions concerning the world from those of science. Science, as we have

It asks concerning the world.

learned, tries to determine the necessary order in which events occur. It seeks the laws of nature, the uniformities of coexistence and sequence obtaining throughout reality. Religion, on the other hand, ignores these questions and deals solely with the problem of the *character* of events; and it does so from one particular point of view. It interprets the individual events not from the point of view of other events that may be compared with them, thus calling one bad and the other good, as does morality; but, far from this, it interprets the individual event from the point of view of the universe as a whole. It seeks to determine the character of each event, not as an event among events, but as an event in its infinite relation, as a part having a meaning for the world as a whole.

As opposed to science, religion deals with the ideal.

All this seems, doubtless, very abstruse, but let us see whether we cannot make it plainer. Religion, ethics, and art all interpret things and events in so far as they cause in us emotional and volitional response. We do not merely know the world; we act in it, we feel toward it, we reverence it, we disapprove, we enjoy, we admire, we worship. Now all such attitudes of our will and emotional nature give the world as interpreted by us *a character*. The world is for us not a mere bare succession of events in necessary order. It has character. It has for us an interest, a value. All its elements are not equally reverenced by us. We choose. We try to eliminate. We become occasionally a factor in determining what shall be and what shall not be. That is, in religion, in morality, and in art we are ascribing to things a character, a value, a merit.

But ultimately what do we mean by the term "character"? We mean the attitude our wills should take toward an object. It is thus an answer that always contains the word "*ought*." It ever states "*what ought to be*," "*how we ought to act in reference to this or that.*"

From the foregoing we can easily distinguish between religion and science; but it will at once be seen that religion is more closely related to morality and to art than to science. Hence it will be more difficult to separate religious problems from theirs. The greater difference, namely, that between science and religion, we have already pointed out in our chapter on the Real and the Ideal. Science deals with the real, with what is, has been, or will be, with the order in which events occur. The other interpretations deal with the "ought," with the ideal, and look at events as objects toward which our wills must take some attitude. Hence our new problem limits itself to the differentiation of religion from other ideal interpretations.

As opposed to morality and art, it deals with the Infinite.

What differentiates them? Religion deals with the world as a whole, with the infinite, whereas the others deal with the finite. But this answer is very abstract and may be quite misleading.

We have already said that religion tries to find the meaning of the part as a member of the world whole, whereas ethics deals with events in relation to other events. We may express the same thought thus: Religion sees in each event something that must qualify reality as a whole and thus reveal the character of the universe in its totality. Hence, it asks: What is the character of the universe? or, which is the same question, What is the character of every event as such, every event as a member of the world-total?

Ethics, on the other hand, does not ask what is the character of an event merely as such, but what is its character as compared with that of other events. For religion there is no difference between one event and any other, whereas for ethics it is just this difference in character that forms the problem. For religion every event reveals the character of the system to which it belongs, and it is just this world-character that religion attempts to discover. Ethics, however, wants to know the character of each event to determine whether that individual event ought to be, or whether some other ought to take its place. Religion answers the question: *What is the character of the world as a whole, and therefore of every event as a member of the whole or genus?* Ethics answers the question: *What is the character of this or that event as an individual or as a species?* Religion's problem is generic, ethics' problem is specific.

The Philosophy of Religion.

Such is religion. However, we are not now studying religion, but the philosophy of religion; and this means that we are not concerned with the different answers given by man to problems belonging to religion,[1] but with *the principles that have governed or must ultimately govern such an interpretation.* Our problem is: *What are the principles of religion?*

The chief axiom of religion.

The fundamental axiom or principle of religion declares that *the world is ideal, that the real world and the perfectly ideal world are one and the same,* or again, that *the world as a whole deserves our absolute reverence.*

The Belief in God.

Here we have again one of the meanings of the term "God." In epistemology we saw that one meaning of that word was the ultimate truth, that the world as a total involves not only the facts, but a perfect knowledge or interpretation of the facts. The religious meaning of the term we now see to be the character that we ascribe to the world as a whole. To use the language of religion, the world is the revelation to us of God. As we interpret it, we interpret him. In fact, we mean by his existence an answer to the question: What sort of a world is it of which we creatures are members? If the world is such that we must despise or condemn it, then it is not divine. There is no God. We are atheists. If, however, the world as interpreted by us is divine, then we believe in God. Therefore we mean by the belief in God this interpretation of the world that calls it divine, that makes it a world deserving our absolute reverence.[1] To such a believer the world is God's manifestation of himself and as such expresses his character. This does not identify God and the world, because even the atheist asserts the existence of a world; nor is it an assertion that there is a creator, for even the atheist must admit this. It is, as we have now seen, the assertion of *the character of the creator as manifested in his creation.* Thus we might ask the question, Does God or the devil create the world? From all this we see that the ultimate principle of religion might be expressed still otherwise. It is the belief in God, in his existence.

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[1] On this subject the reader is referred to the interesting and suggestive work of Professor James, The Varieties of Religious Experience.

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[1] *The term "God."*

The primitive and popular conception of God implies that he is a being more or less like man. He sees, he is angry, he reasons, he wills, he dwells in heaven, and so forth. To this are added many assertions that quite contradict the original belief. He is infinite. He is immaterial. He is omniscient, omnipotent, and omnipresent.

To the thoughtful, though they may for convenience or for emotional and pious reasons retain this language of anthropomorphism, the conception itself is an anachronism. The manifestation of God to us is the infinite world. God is revealed to us in no other way than through that world of facts and the principles and knowledge that interpret the facts. Hence if we try to picture him, we should have to picture the universe, or his creation or manifestation. Thus we are forced to say that any anthropomorphic picture of God is idolatry; but no doubt it is an excusable one, for we men need the picture and we cannot picture the infinite. If picture him we must, no doubt the highest known creature of his, the ideal man as a spiritual being and personality, is the noblest picture.

But, it will be asked: Does this deny God's personality? Personality has a very definite meaning as applied to man; but when applied to God, the meaning is surely quite altered. Yet we admit, if we have to picture God, by all means picture him as spiritual and as personal. The question is not whether we prefer the term "personal" or the term "impersonal": God's nature so far exceeds our ability to picture, and his nature transcends so far our finite ideals, that the best we can conceive, even personality, must be infinitely less than his real nature. We should therefore say, with Paulsen, God is not impersonal, but suprapersonal. (Cf. Paulsen, Introduction, page 243, Section 9, on the Relation of the Pantheistic Notion of God to Religion.)

There is one more point to be mentioned. What does atheism mean, and who is the atheist? We reply, Atheism is the denial of ideality as ascribed to the world. He who says that the world is evil, or had better not be, he is an atheist. He makes the world a manifestation of evil. He denies God. In short, *atheism is here synonymous with absolute pessimism.* Theism admits of relative pessimism, as we shall see in the chapter on the Nature of the Good, Chapter LII. Clearly it is taking too narrow a view of God's nature to call a man who objects to anthropomorphism an atheist.

The Validity of the belief in God.

But how is this principle that the world deserves our absolute reverence, or this belief in God, to be justified? The answer forms the remaining topic of our chapter.

It must be shown to be axiomatic.

What right have we to say that the world is an ideal world? Clearly we have no right to say so, if this right must be gained by searching the whole world over for our evidence. If our problem can be solved only by empirical science, that is, only by consulting the facts, we shall never answer it, for the facts that must be consulted are infinite in number. No amount of evidence can tell us the character of the world as a whole, any more than it can give us an astronomical description of the whole realm of space. No amount of finite evidence can tell the story of the infinite.

If this is so, how can our question be answered? There remains clearly but one way. If it is to be answered, it must be shown to be involved as a necessary principle in our very attempt to interpret reality at all. If our principle is truly a principle, a necessary premise, then its validity must be accepted under the penalty of overthrowing knowledge as such, in short, under the penalty of maintaining nonsense. But how can we show our principle to be axiomatic? By showing that it is presupposed in all acts of our will, that is, in all acts whatsoever, and hence even in knowledge, for knowledge is ultimately as much an act of our will as is anything else.[1]

The Proof:

You and I are members of a great world-system. Our bodies are manifestly a portion of the material world.

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[1] Cf. Sigwart, Logic, Section 105.

We men are consciously partners and co-workers with the creator and must be so;

From it they draw the energy that enables them to continue those processes we call life. They are acted upon by forces from without, such as food, the air, the light, the heat; and they in turn react upon the world through muscular contraction. As a wheel in a clock is a member of the whole clock movement, being acted upon, and in turn reacting upon other wheels, and thereby performing its part of the whole mechanical work that measures time, so also is our body a part of the material world that surrounds and includes it. Our psychology tells us that the same truth holds of our mind. It is inherited from our parents with its instincts, actual and potential, already present. Education modifies these instincts and constructs the habits and the varying abilities to reason and to act rationally; but education itself is ultimately due to influences that come from the world without, and are reënforced by the world within, our instincts. Thus our mind, too, is a member of the world at large. It has to live in this world. It is limited in its activities by this world. Its whole life is a reaction to its environment, and its environment is but a part of the world. Here we have one fact, and this fact is one of our premises. Our life in all its elements is part of the world-process.

On the other hand, it is a fact that you and I choose, that you and I attempt to determine our reactions to environment, that you and I occasionally take part and must take part in the world's work. No matter what we do, it is part of the general activities of the world. If we try to do nothing whatsoever, we are but deceiving ourselves; for our refusal to act has its effects upon the world just as truly as though we had acted. If we refuse to be members of the world and commit suicide, we have again only deceived ourselves. Our death cannot be without its effects. Without our living bodies in the world it would be different from what it would be were they present; and this difference is just the very result of our own act. We have left our influence in the world, and the world to all eternity will be different because of our choosing to shorten our lives.

Therefore do what we will, you and I are parts of the world; and no matter what we try to do and not to do, you and I take part consciously in the great eternal activity that constitutes the world-process. Thus our second premise adds to the first by saying: Not only is our life in all its elements a part of the world-process, but also we ourselves are and must be conscious partners and co-workers in that process.

and therefore our lives presuppose necessarily our approval of the world.

Now for our proof. If this premise be true, and it is beyond dispute, our lives must be one continuous contradiction, or else our wills must approve of the world-process as a whole. The world-process must gain from our wills an absolute reverence, or else there is this contradiction, our wills are and must be partners in a work that they despise. Human action is one complete contradiction in all its elements unless there be ultimately a complete identity between the perfectly ideal world and the world in and with which we have to be partners. Now did this absolute contradiction exist there could be no longer a rational justification for conduct of any sort. Rationality, as such, must be meaningless because utterly useless.

Even knowledge presupposes this.

But let us state this last point more in detail. To know, or to interpret the world, is simply one way in which our minds act. Therefore back of knowing there is the will, and the will in leading us to know is but realizing one of its ideals. In fact, its demand that in knowing we shall act or know rationally is an ideal. Hence, if the will's ideal be as such throttled at the very start, knowledge becomes an impossibility, for it would be as absurd to strive for rationality as it is to try to be irrational. We should struggle for what the world will not let us be. Hence if the will attempts to lead us to knowledge, it necessarily presupposes that rationality is a possibility, and that it is justified in so presupposing, otherwise we are from the start skeptics.

Without it life would be paralyzed by skepticism.

But what is true here is true in all departments of life. Life would be saturated through and through with skepticism were not this ultimate premise granted our wills. That our wills do act, that we strive to know, that we strive to bring rationality into all our doings, is sufficient evidence, is complete proof that our wills do presuppose as a premise, and as a premise *a priori*, this ultimate principle of conduct.

If this premise be disputed, we have pointed out the skepticism that must result, for we have shown that the will must make this presupposition, that it is a necessary one. But perhaps you still reply: Why is skepticism to be rejected thus summarily? May not this new type of skeptic be in the right?

Volitional Skepticism is as absurd as is intellectual skepticism.

What! a skeptic be in the right? *If he be right, there is no right!* Skepticism cannot be proved or disproved; and what is more, cannot be lived up to. The very skeptic who rejects the ideality of the world is forced the next moment, yes, the very same moment, to take part in the world's work. He is forced to have faith in that very principle which he doubts. He is forced to take sides, to act upon the world, and to determine its course, even in the very instant in which he claims that he is unable to give it reverence. His very act belies and must belie his volitional skepticism, just as did the intellectual or rational skeptic belie his skepticism.

Skepticism in the world of action is thus nonsense for the same reason that skepticism was in the world of knowledge. Just as the skeptic then had to assume the validity of knowledge to maintain his position, so also does he now in the world of action. Why be a skeptic or why be anything? Why is anything better or more worthy of acceptance than aught else? Why urge on us what at best is no better than what we had before? In short, the skeptic cannot urge one particle of proof or justification for his attitude. If he does so, he gives up at once his skepticism and asks us to listen to reason. If his position is not rational, if it admits neither of proof nor of disproof, then we need pay no attention to him. He has already committed rational suicide, and the most that we can do for him is to read the burial office over his rationality and accountability.

The will does, and the will must, presuppose an ultimate harmony between itself, that is, between its ideal and the world in whose work it has to take part. This alone makes life rational, this alone makes it endurable; whereas the other attitude would mean the complete paralysis of all attempts to interpret the world and life.

In this principle, then, we have one even more ultimate than the principles of knowledge themselves; for this principle lies back of the very attempt to know the world, just as the will lies back of all mental activity. It is the principle of conscious activity as such. Thus religion lies at the back of life as a whole and forms its ultimate justification; and this ultimate justification rests upon the *a priori* premise that the real world is also the ideal world.

As is our knowledge, so also are our ideals finite and imperfect.

There is one misinterpretation of this principle against which the reader should be warned. Of course the doctrine that the real world is the ideal world does not mean that you or I can form for ourselves a picture of this perfect ideal to which reality corresponds. We cannot do it in the field of knowledge. We believe that a perfectly rational and complete system of judgments would constitute a true story of reality; but no one supposes for a moment that we can ever put together such a system. All that we can do is to tell within what limits it must fall, that is, how it is limited by its very principles and nature. To attain to the rest is the goal that we try to reach, but which as finite minds we never can do more than approach as we gradually add to our finite knowledge.

So, also, in forming a picture of the world as an ideal world, we cannot do this any more than we can write out a complete science of all nature. As we can assert the ultimate harmony between knowledge and the world that we try to know, so, also, can we assert the complete harmony between the will and the world in which we have to act. The former proposition does not mean that much of our knowledge is not false, that all must be true. It means that we always have the hope of discovering our mistakes if we are making errors in our knowledge. It tells us that truth cannot, if thoroughly sifted, be mistaken for error, or error for truth. How far we shall actually accomplish our ideals in life is, therefore, a very different question from whether they, as such, admit of a conceivable accomplishment.

To return to the principle of the will. The ideals you and I have are doubtless most imperfect, and will always remain so. Religion must grow and develop as does knowledge. It is liable to all the imperfections due to the finitude of man's mind, just as is science. The ideal, then, to which the world corresponds, means solely that there is no inherent contradiction in our living as such. The contradictions come from other sources and admit of a conceivable eradication. In fact, the whole course of the history of civilization and of religion is little but the eradicating of errors that man's mind has made and the establishing of better knowledge and better ideals in place of the old and outgrown ones. This process must continue as long as history continues. The will knows that as it progresses toward the truth the more perfect does its ideal become, and that the perfect ideal is inherent in its goal, even though this goal is beyond the horizon of its finite vision. It knows that all contradiction between itself and the world in which it lives is due to its own imperfection. It knows that as its ideal becomes more perfect, this friction, or contradiction, will gradually be done away. The will's very ideal, then, is to do away with the friction. The will seeks to conform itself to the world. The world, or God manifesting himself, is not its enemy, but its friend; and, in the words of religion, God is its Father. This is the doctrine of man's sonship. His life now becomes a fulfilling of his Father's will. There is no inherent contradiction between the two, for the very longing of the will is to be the perfect son, to gain that sight of God which means the possibility of perfect harmony between the will and its creator.

The Sonship of Man and the Fatherhood of God.

But all this is not forced upon the will from without. The very unfolding of its true nature is the forming of a conscious picture of the ideal, just as the complete knowledge of the world is but the working out to perfection of the very life of the intellect. This is the ultimate harmony between the mind as interpreter of the world and the world as the object of mind, or as the Hegelians put it, the identity of thought and reality. Or, to adopt the language of religion, it is the dogma that man is made in the image of God. Between God and man there is no inherent contradiction; because man himself partakes of divinity, and his true self is to be godlike.

Again, this principle contains the essence of man's belief in that complete fatherhood of God which may be called an all-ruling providence. The will sees ultimately in everything the working out of a power that is ideal. It may be that you and I cannot see the why and the wherefore of our lives, or of this or that event in them. None the less our wills bid us believe that no contradiction can ultimately be there. They bid us have absolute and complete trust in the world and all that its creator brings into being day by day. Our principle thus makes life one continuous act of faith and trust in the ideality of the world, and bids us grant toward the world, or God whose manifestation it is, that absolute reverence which constitutes and alone can constitute true worship.

CHAPTER L

THE PROBLEMS OF DEATH, EVIL, AND SIN[1]

The problems of death, evil, and sin.

In the previous chapter we learned that the fundamental principle of religion maintains the ideality of the world, and we drew the conclusion that religion is that interpretation of the world which tries to tell the story of reality in accordance with this principle. Religion tries to form an ideal picture of the world as a whole and to behold each event as a member of this ideal system.

As a consequence, religion is called upon above all else to reconcile with itself those elements of life which seem farthest removed from the ideal. Its problem is to explain how in an ideal world elements seemingly so at variance with the ideal can have any existence. These discordant elements we may sum up under the three terms, "death," "evil," and "sin." How can an ideal world admit of death, evil, and sin? Do these not contradict the world's being a perfect world, a world deserving absolute reverence?

These three are realities, not delusions, and hence the need to meet the problem fairly.

One answer to this question we must point out, but pass quickly by, for this answer is really no answer whatever. It has been denied by some religions that evil and sin exist at all, that they are more than mere delusion. We rid ourselves of both the moment we rid ourselves of the delusion. This answer is no answer at all, for the delusion itself, then, becomes the evil, and the delusion surely exists. Such a delusion is as great an evil while it exists as could be the real evil that such a religion denies. In short, the facts themselves show that evil and sin exist. It may be that we interpret these facts wrongly and give them a significance that they do not deserve; for if they be mere delusion, we do wrong to ascribe to them an objective existence. Still they are just as great an evil if they exist subjectively, for they are evils because of their effect upon our minds. Hence as subjective evils they play all the part ever maintained to belong to the objective evil.

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[1] *Literature.*

For a fuller discussion of the subject of this chapter the student is referred especially to: John Caird, The Fundamental Ideas of Christianity. 2 vols. Glasgow, 1899.

It is no answer to this to say that we are able to rid ourselves of such purely subjective evil. We may be able to rid ourselves of it, but experience shows that the task is by no means an easy one; for as a matter of fact, objective or subjective, evil has been very tenacious, and the human race has done very little toward its complete suppression. History is full of evil and sin; and even though some future race may succeed in doing what we fail to do, still the evil that has been and is remains to be explained and harmonized with the belief in the ideal. The delusion existing for a short time demands explanation as truly as though it existed for all time. If evil be a blot upon our ideal, then the world that admits evil in any form for any length of time cannot be called an ideal world. The devil's stamp is upon it. Hence, that religion which treats evil lightly, which bids men not believe in what is so manifest, can never hope to be a permanent answer to man's deepest problem. There is in this solution too much appearance of ignoring the real question at issue to carry long-abiding conviction. Objective or subjective, death, evil, and sin are realities and must be dealt with as such, for nothing will be gained by the distinction between the two types of reality.[1]

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[1] *Pessimism.* The doctrine that evil is more abundant in the world than happiness and pleasure is called Pessimism. As we have noted before, there may be an *absolute* pessimism which is synonymous with atheism. Here, however, we refer to the other type of pessimism, or relative pessimism. This doctrine maintains simply that at one time, period, or

I. *Death.*

Our problem has a deeper significance than that of immortality.

Death is. How should religion interpret it? At once we shall hear the answer: "Death destroys only the body, not the soul. After death comes a life beyond the grave, a better life even than the one here on earth." But the question to which this is an answer belongs, as we have already maintained, within the field of science, and facts alone will enable us to give it a settled answer.

But it is not the question ultimately at issue. Even though we prove that a life beyond the grave awaits every child of man, and animal too if you will, are we really any nearer the complete answer to our question than when we started out? Grant that there is a life after death, is that life in turn immortal? How, by any empirical evidence, can we look forward into all eternity; for, remember, religion deals not with the finite time or the finite event as such, but with the finite event as a member of an infinite system? Religion has to answer for the world as a whole, for eternity.

Our life must have an eternal worth, or meaning.

What, then, is the truly religious problem of death? It is this. We demand for our life an eternal meaning. If you and I are to take part in the world's work, we demand that the part which we take retain its significance for all time: otherwise, what reason can be given why we should seriously take part at all? If we build only to have all that is finished destroyed forever, why should we build at all? Such a picture of life would make it a meaningless play of events, like children building sand-castles on the seashore which the next tide will wash away. That is,

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place, evil is more abundant than happiness. This theory is clearly not a philosophical one, but is quite empirical and can be reconciled with any philosophical view the moment such a philosophy admits the existence of evil, for evil during very short intervals at least is doubtless more abundant than happiness. Hence as philosophers, we shall neglect any further discussion of relative pessimism. The reader is referred to the interesting discussion of the question in Paulsen's System of Ethics, the chapter on Pessimism. Also to the same author's Schopenhauer, Hamlet, Mephistopheles: Zur Naturgeschichte des Pessimismus. 2d ed. 1902.

we should be led back into the very skepticism from which our first principle rescued us. If we are to act, and if our acts are to have an absolute justification, then our lives must be a real part of that infinite and eternal system, the ideal world. They must be more than mere events that come and go, without any significance extending beyond the few years in which they have their being. For us to take an earnest part in life, life must have an eternal meaning. This is the religious principle of immortality. Our lives must be granted eternal worth; and we must feel that as we live and work, we are doing so for eternity.

The relation of this axiom to the belief in immortality.

But you ask: What has all this to do with death? We reply: It has much to do with it. Before you and I are in a position to answer anything whatsoever concerning the facts beyond the grave, we can answer the ultimate question at issue; for we do not depend upon this or that chance fact turning up in our experience in order to give the answer. We have at hand a principle that tells us all that we need ultimately to know in order to ascribe to life eternal significance and in order to meet death with complete trust in the ideality of things and of life. No matter how the question of the grave be answered, we are not dependent upon that answer. Life for us is of supreme value. Life is to be lived to the full. Life takes a part, an eternal part, in that universal life of God, and by the part thus taken wins an eternal meaning and in that sense an immortality. Death for us, then, is not necessarily a contradiction to our complete faith and trust in God. If in the divine order of things life is not to continue beyond our earthly days, then ultimately well and good. An ideal universe does not need that continuance to make it ideal. Such will be our belief, hard as it may be to live up to. If our lives are needed, they will continue; if not, they will not continue. Either fits into our ultimate faith without necessarily contradicting it.

In other words, this principle does not claim for us immortality in the ordinary sense of that term. It leaves it an open question for either science to answer by searching out evidence or religion to answer by constructing the most exalted ideal that our finite minds enable us to form. The philosophy of the scientific problem of immortality we have already considered. Regarding the purely religious problem, we can say but little without departing too far from the problems alone properly belonging to philosophy. Of course man seems to demand for himself a life beyond death, and to regard his annihilation at death as a contradiction of an ideal world-order; but whether or not this religious interpretation of life be final, is a matter for the religion of the future, and not for philosophy, to settle.

Its implied belief in the eternal life of God.

However, there is a further element in the problem that does belong to philosophy. Does not the very term "ideal" force upon us the belief in an eternal consciousness for whom the world can be ideal? This question is evidently parallel to that other question which we had to ask in the theory of knowledge. If the interpretation of the facts as well as the facts themselves forms an ultimate element of reality, must we not assume along with the eternal succession of facts their complete interpretation? So here, if the world as an object upon which we consciously act is an ideal world, must there not be eternally present in it that element which alone can make it an ideal world, namely, an acting will? This eternally acting will would be called God's will.

This problem again is a very abstract one, and therefore carries with it all the suspicion, danger of error, and liability to be misunderstood that such problems always involve. In the theory of knowledge our statement amounted to saying: The ultimate fact revealed to our minds as we look at the world is *mind interpreting an object.* Now our statement amounts to saying: *The ultimate fact is mind striving to realize its ideal.* We could not divorce the interpretation of the world from the facts thereby interpreted.

No matter how far we might carry our abstraction, a mere fact with nothing more to it would not leave us something that could stand by itself and so form the conclusion of our abstraction. The mere fact or object of interpretation needed, for it itself to exist, the interpreting mind to stand by its side. So here in religion the ultimate fact is not a mere fact divorced from all else. It is an object that has side by side with it a will modifying it. In the one case interpretation was ultimate. In this case a will realizing its ideal is ultimate.

The eternal life of God and man's life.

But do not let this abstract view be misunderstood in one way. It does not assert that you or I, or any other finite will must always continue to be, any more than the theory of knowledge made out of the individual mind interpreting its object a universal mind. This will, too, must be universal. It is the Infinite Will. Our doctrine maintains that the world, as a whole, must be looked upon as a will, realizing its ideals. But here, again, there is a danger to be avoided. This principle does not assert more than the bare element left by abstracting all other elements. It is simply an attempt to describe a high abstraction, and in one way means that we can picture God as a will like ours, not, however, that we ascribe to God literally a will in the sense that our psychology uses the term. It means our ultimate inability to divorce by abstraction the interpretation from the object interpreted and likewise the ideal from the object in which it is being realized.

All this does not prove your mind or my mind to be immortal; but it does compel us to believe that our finite struggle to realize this or that ideal has as a counterpart an infinite struggle, and further, that our finite struggle and the infinite struggle belong together, that the finite struggle is a member of the infinite struggle. To put the matter in another way. Even though you and I pass away, the work that we are doing belongs to an infinite work and will therefore be continued. It does not say whether this must mean that you and I will go on with the work in another life or not; but it does say that the world could not be an ideal world if our life, that is, the realizing of our ideals, were really annihilated by our death. Our life in the sense of the realizing of what is truly and rightly the perfect ideal of our life must be thought of as ever continuing. Otherwise we are forced into a contradiction of the ultimate principle.

No doubt to most this abstract life will seem a very poor substitute for the concrete life in the body; but we do not mean it to be any such substitute, for we do not mean by this abstraction more than the working out of our ultimate principle for all that it is worth. As a religion it is not worth much, because religion needs more than mere abstractions to make up its content, just as science needs more than the mere abstract principles of mathematics and abstract mechanics and the law of causation in order really to be science. Religion, then, will go on to seek a concrete presentation of an ideal world in accordance with this principle. Just how it will be worked out, philosophy cannot tell. But philosophy does demand that whatever be the concrete doctrine of religion, it shall assure man that his life has an eternal worth and an eternal continuance, at least in as far as that life is the working out of the perfect ideal.

To pass to our second problem, namely, that of *evil*. Evil exists, that is, evil in the sense of pain and sorrow, suffering and misery. Pain we cannot look upon as something that deserves to be. We cannot reverence suffering as such; and consequently we are forced, at first sight, to regard pain as a blot upon reality. Can religion reconcile the existence of evil and the ideality of the world? What will be the principle in accordance with which this reconciliation can be accomplished? This is our next philosophical problem. II. *Evil.*

Pain, as we know, is that element in the object or the

Evil necessary to the will's struggle;

world which the will tries to annihilate. Or, to use the term "evil," evil is that element in the world against which the will struggles. In short, the very struggle of the will depends upon the existence of evil. In a world without evil there need be no attempt for the will to realize its ideal; and therefore a world without evil would mean that the will had reached its absolute goal and that its life had ceased. But against such a view it may be said: We make the world a mere type of treadmill to keep the will busy, for evil is justified simply as an instrument to give us something to do. Such would no doubt be a fair conclusion if our argument stopped at this point, but there remains a second part. We have shown that evil is essential to the will's activity; we must now show that the will's activity is itself essential to an ideal world.

and struggle is an essential element of the ideal world,

Remember that we have before us as a problem the justification of the existence of evil in an ideal world. Why the world should be ideal, why it is not enough for the world to be merely a real world, a world toward which our wills are in no way called upon to take any attitude whatever, this is an absurd question. Just as well might we ask: Why cannot our world be intuited directly by us in such a way that we do not have to interpret it through judgments? Such a question is absurd because it does not admit of a conceivable answer. It takes us entirely outside of the limits within which all questions as such have to be answered. Thus as a question it is meaningless. To apply all this to the question in hand: We can never tell why the world should be an ideal world. It is an ultimate truth that we will, that we do take an attitude of reverence or the opposite toward the objects of the world. It is a fact that for us to live means to struggle, to attempt to realize ideals. It is within this ultimate interpretation of reality, or view of the facts, all other interpretation must be given. We know as an ultimate piece of knowledge that the world is presented as a seat of struggle, that it has significance for us only as a seat of struggle, that it can be an ideal world only because our wills can take an attitude of reverence toward it.

for it is the struggle as such our wills reverence.

Now the question becomes, What is it ultimately that our wills reverence? Is it the ideal accomplished or is it rather the actual accomplishing of the ideal? The accomplished ideal, if it did not lead on to a new battle, would be for us the cessation of struggle, and that would mean of life itself. We need to struggle, for to struggle is to live, and not to struggle would be eternal death. Back of this ultimate need of life itself we cannot go. It is an ultimate need, without which life loses not only its significance but ceases to be life at all. This, then, alone can be the justification called for by our question. We need evil, for evil is essential to life's struggle, and life's struggle is life. The Nirvana in which the struggle had ceased would mean to us the cessation of all life, and with it the cessation of all meaning and so of all ideality in the world. The ideal world, then, must be a world in which ideals are realizing, not a world in which a will as such has no place.

III. *Sin.* The problem.

The problem becomes harder as we turn from that of evil to that of sin. By sin we mean our conscious failure to realize our true ideal. How can such failures on the part of the will to accomplish its true task, or to win in its own struggle, be possible in an ideal world? How can there be room in an ideal world for the sinful will? Is not sin, not in degree but in kind, a far different picture from evil? Evil can give the will its task, but sin signifies actual failure.

How is the reconciliation to be accomplished? Were the individual sinful will all, then no doubt such a world could not be ideal. But the individual sinful will is not all, for the world as a whole is ideal, and is not as a whole sinful. Sin belongs to the finite, not to the infinite; and somehow this truth must contain the reconciliation. An ideal world must be shown to admit the presence of sin in the finite object.

Sin is due to our finitude, and this is an ultimate and therefore inexplicable element of reality.

Now the solution of this problem is very similar to the answer of the question: How in a world of truth can there exist the ignorance and error of our finite minds? They start out to accomplish a task that is really infinite, namely, the complete interpretation of reality, but they must fall short of the attainment of this ideal because of their very finitude. So, also, our wills. They, too, start out with the task of realizing the perfect ideal, of subduing evil completely; but for finite wills the task is impossible, and sin is thus only the consciousness of the will's finitude and resulting failure.

Our problem then becomes solely this: How can the finite exist in the infinite? The question again takes us beyond all possible explanation, for all explanation must start out with the finite, as we saw in our study of the principles of reality. In short, we must accept sin as we did evil, as belonging as such to an ideal world. Both are inexplicable because they would have to be interpreted in terms of themselves. Our principle then is forced to recognize both as ultimate elements in an ideal world and to charge the very attempt to explain them with being nonsense. Thus philosophy answers both questions by ruling them out of court. They are unanswerable; that means they are not valid questions. The problem of man's life must, therefore, fall within and not without these ultimate situations, and must therefore be answered in terms of a world containing both sin and evil.

Redemption. **Man is both finite and infinite; as the latter he can find alone in God the complete satisfaction of his ideals.**

There remains one more doctrine to mention here, that of redemption, which arises out of this ultimate interpretation of life. The individual will, unable to escape the bounds of its finitude but yet possessed with ideals that demand infinity, can find its sole ultimate satisfaction not in self but in the infinite. The self is sinful, God is holy. Therefore, in God alone can man find the satisfaction of his ideals. If he depend wholly upon his own life, that life must be a complete disappointment, and his ultimate verdict must be, "I am sinful." As knowing and willing creatures we are finite, and our days must be passed in sin and ignorance. Thus the existence of the perfect interpretation of reality and the perfect accomplishment of the ideal forms the means of reconciling our finite ability with our infinite longing. Man is not sufficient unto himself. To make his life complete he must seek to find in God's life his redemption.

Conclusion.

It is in accordance with these abstract principles that religion must seek for the concrete reconciliation of man's imperfect mortal life with the ideals of his will. No doubt as his knowledge is but imperfect and can fulfil but very imperfectly the demands of its principles, so also will his religion be imperfect. The principles demand a perfect reconciliation, whereas man can give but the imperfect one of the finite mind. Yet back of all there lies the belief in truth as such; for, as there is a perfect interpretation of reality toward which we as scientists strive, so also is there a perfect reconciliation between the real and the ideal, toward which our religion strives. Of this much, the very principles that govern and have to govern our interpretation assure us, and assure us absolutely. Of this ultimate faith in the world, the disappointments of the finite life cannot rob us; for, as the justification of life, it can never be lost sight of while we remain rational creatures.

CHAPTER LI

A CRITIQUE OF RELIGION[1]

The Field f Religion.

WITH all or almost all the foregoing chapters as premises, we are now in a position to discuss two important problems that together may be said to make up a critique of religion. These problems are, first, the true field of religion, and, secondly, the warfare between science and religion. The two are ultimately one problem.

Science and Religion complementary.

We have seen that religion has before it a problem quite distinct from that of science. If this were not so, then religion could be merely a popular, traditional, and outlived science, and must ultimately give place to its stronger rival. But we have argued that the essential problem of religion is one that is not, and cannot be, included in the problem of science. On the contrary, the very attempt, as such, to solve the problems of science, presupposes the answer to more fundamental problems. Before the will undertakes the task of science, the principles of its activity must be granted it; and these are ultimately the principles of religion, the principles of the ideal. In short, the interpretation of the real presupposes ideals, and these in turn those ultimate ideals, the ideals of the infinite, that according to our definition constitute religion.

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[1] *Literature.*

For the controversy between science and religion, consult: A History of the Warfare of Science with Theology in Christendom, by A. D. White. New York, 1896.

History of the Conflict between Science and Religion, by J. W. Draper. 4th ed. New York, 1875.

Cf. also James, Varieties of Religious Experience.

Historically speaking, the two have been, and are still, but slowly differentiating themselves from one another.

Now it is true, historically speaking, that religion has not stood merely for these ultimate ideals; but we firmly believe that the essential element of religion has ever been made up of them. It is a law of evolution that the early state of any developing structure lacks the complexity and definiteness of parts, or differentiation of organs, that the same structure possesses in its highest stage. The ovum, from which the animal develops, has not the division of organs, and with them the division of labor, that the mature creature possesses. This same law holds of religion and science. Religion, historically speaking, cannot always, in fact can seldom, be differentiated from science. The sharp separation of the two that our philosophical discussion presupposes exists as a fact even to-day, only in the mind of those carefully and philosophically trained. The church, the clergy, and people have only here and there differentiated the problems of religion from those of science. In the case of the Roman Church we find it still a guardian of mediæval philosophy and science, and feeling itself responsible for this great mass of scientific interpretation. But not only does the Roman Church do this; much the same may be said of Protestantism. The church feels itself called upon to maintain and to defend scientific conclusions concerning the historical events recorded in the Bible, and concerning the authorship and genesis of the writings therein contained. Likewise, it feels itself responsible for a philosophy that will serve as a rational justification of the various dogmas which it teaches. Yes, we may even go farther and add that, for many conservative communities, the Bible and the church are still the teachers of much of the science that they possess.

The history of this movement since the thirteenth century.

All this is true enough, but still it is only half of the truth. Since the days of the thirteenth century there has been going on a gradual process of differentiation between the problems of science and those of religion, and this differentiation is proceeding rapidly to-day. At first the church opposed the study of nature altogether. Later it admitted Aristotle's writings, and with them allowed to enter the thoughts of her children a problem that had to prove revolutionary. In the days of the Renascence the church did all in her power to prevent the adoption of the Copernican theory, and in short felt herself responsible for the science of astronomy. Those days went by; and that they did go by, means simply that one more problem was separated from religion and handed over to science.

However, the controversy should not be charged against religion more than it is charged against science. We must remember that you cannot raise charges against religion till religion is far enough differentiated from other forces to be dealt with by itself. The powers that persecuted Galileo were religious, but were also many other things besides, including as they did the scientific and political body of the day. The struggles of the Renascence and general Reformation were the growing pains not merely of religion but of science, of morality, of art and politics. The resistance was due to the undeveloped thought and civilization of the times, not, however, to any one power on which you and I can now place our finger and call religion. Men, not a mere abstraction like a type of truth, were causing the resistance; and when the men changed, the truths they held changed; and the world's problems thereby went through a new stage of differentiation.

To pass quickly along the path of history, another great differentiation takes place in the nineteenth century. We refer to the Darwinian doctrine of evolution. Before Darwinism gained its victory, the church felt itself responsible for a particular theory of animal and plant creation. That new stage passed; the church is, or will be, ready to let science go its way, and to renounce all responsibility in biological matters.

To-day we are in the midst of a new struggle. There has arisen the critical study of the origin and genesis of the books of the Old and New Testaments, and therefore also of the origin and genesis of both the Jewish and Christian religions. The church feels itself responsible for definite views on these subjects, and as ever before feels that religion herself is at stake. The historian of civilization will doubtless smile at the anxiety and see simply one more growing pain added to the long list. No doubt the critical students are right in principle, no matter what they may be in the detail of their conclusions; and no doubt the church will learn that it can give the biblical critic and religious historian the same freedom it has given the astronomer and geologist.

What the next struggle will be, we are not prepared to say. Perhaps psychology will have its turn, and the doctrine of immortality especially may be called into the struggle.

But all such questions aside, what is the significance of the great movement beginning in the thirteenth century and differentiating religion from science? There can be but one answer for the philosopher who accepts our premises. Religion and science have two distinct problems to answer, and these two great types of interpretation must therefore become further and further differentiated as civilization and human thought progress.

(I) The true office of religion and her duty to an advancing civilization.

If our philosophy and our interpretation of history are sound, both religion and science have some things to learn. The leaders in religious thought and church government must learn what ultimately belongs to science and what does not. If mistakes are made, they are probably the result of claiming what belongs to another. Whether we like it or not, a great mass of doctrine still held to tenaciously by the church really belongs to science, and some day will be peaceably or forcibly taken away. No man or set of men can withstand the mighty stream of history; and therefore our religious leaders are called upon to-day, as perhaps they never were before in the world's history, to adapt their sacred charge to the new environment.

The work of religion is to give man the ultimate ideals for which he shall live, to show him the meaning and destiny of his life, to reconcile him to the evil, the sorrow and disappointment that life has in store for all, to give him ideals and inspiration to overcome these obstacles, to save him from the power of sin, to renew in him an enthusiasm for righteousness, and finally to fill his heart with that love and trust in the infinite order of things which alone can make him a son of God and can bring his finite life into harmony with the infinite life of God.

To do her work well religion needs science, needs the results of science, needs all the help that science can bring her. But religion is not called upon to be science, to assume in any way a responsibility for the conclusions that science reaches. Religion is to seek the aid of science, but never to tyrannize over science. Truth is truth, and a love for truth is itself an element of religion. How dare she that is called upon one moment to teach this love of the truth the next moment forbid man to reverence and be faithful to that love? No, let science go her way and let religion gratefully accept in her work all the help that science can give her. Let religion not be disturbed because one after the other traditional anachronous scientific dogmas that were once so intimately associated with her faith have now to be separated from her.

No doubt as these great changes, these stages in the growth of civilization, come upon us, religion is presented with a harder and harder task to fulfill. No doubt her leaders must be men of greater caliber than in the days when their work was merely to uphold a tradition. No doubt as man comes to know better and better the world in which he lives, the older superstitions and errors that gave some men an easy leadership over their fellow-men will be taken from them. No doubt progress in civilization means a democratic community, and in a democratic community leadership is a harder task than in the more primitive society. The superstitions of an earlier day could drive men to subjection; but men truly freed from superstition can no longer be led by fear but only by those soul-compelling ideals whose power to inspire can never pass away, because life itself would first have to cease.

The idea of the Supernatural must be revolutionized.

But what is the philosophical meaning of all this? We may put it in one sentence. Religion must revolutionize her notion of the supernatural. Religion is supernatural and must always be such, but man's notion of the supernatural is surely changing. The supernatural dare no longer mean truths contradicting the canons of science. The laws of causation, the conservation of mass and motion, must hold true the world over, or else science must stop short and give up her task. Nowhere can science admit exceptions to her ultimate canons; and the moment a demand is directly or indirectly made that she shall, that moment a contest must begin in which the philosopher will place his wager on the side of science. The supernatural does not have to do with some part, or section, of the universe. It is not an Olympus. The supernatural deals with all the world. The supernatural differs from the natural as the real differs from the ideal. In fact, the supernatural is to mean the ideal and only the ideal. But why then call it supernatural? "Why?" do you ask? Because the ideal precedes and governs our interpretation of the real. The real gains its significance only from the ideal presupposed by it.

Therefore, to those who think our critique harsher against historic religion than against the leaders of science, we reply, so much the greater honor to religion. Of the two religion should be the leader. Religion must be back of all life, and, therefore, back of science. Alas! then, if her leaders so far forget their most noble office that they drive the scientist, whom they should inspire, into open rebellion. Science demands her constitutional rights and will insist upon having them. Our critique then presupposes that the true office of religion is the noblest and highest in the whole realm of life; and, therefore, twice great is the crime of unfaithful leadership.

(II) Science has sinned against religion. It must itself presuppose religion; and its substitutes for religion can be only makeshifts.

But the leader in religious thought has right enough to complain against science; and it is the philosopher's office to judge justly between the two. In the name of science religion has been greatly sinned against. Scientists have over and over again held up to man finite objects or ends, and have bidden him fall down and worship what are thus mere idols of man's own making. We cannot live ultimately for the finite; and the scientist that thinks we can is as much an idolater as the semi-savages of old. Man must have an absolute foundation for his life, and, therefore, any finite ideal can at the best have only relative validity. You ask us to live for man, for humanity, for civilization; but what are these? The day will come according to your own story when man and civilization, the earth and all, will have passed away. True, we should live for these things, but not because they are absolute ends. They must get their worth from some deeper principle or else they have no worth whatsoever. Did we in actual fact, yes, did you in actual fact live true to your very dogmas, you would paralyze life itself, and with it science. Surreptitiously you yourself hold on to deeper principles, and they give you that enthusiasm for the truth for which you have so often and nobly sacrificed self. In short, you are blind to the very presuppositions which give validity to all that you do and to all that you know and teach. Back of your science, and necessarily so, stands religion; and whether you see her presence there or not, there she stands and there you ignorantly worship the Unknown God. You that find naught but superstition in religion, are yourselves teachers of a superstition that seriously taken and consistently lived up to would not drive us back merely to barbarism, but would drive us out of life altogether.

Science, on her side, must recognize religion and her valid field. Science must accept her leadership, and if science does not do so, then so much the worse for science. You few leaders will become a small band by yourselves, but you will find that mankind at large will follow you only so far and then will commence to desert you. If you want the Middle Ages back again and science packed away once more in the attic, then renounce religion altogether and make science synonymous with irreligion. You will then in time surely have what you want.

But we look forward to such a future of science as little as we look forward to the downfall of religion. Of course our argument, as far as it is historical prophecy, presupposes that we have not yet reached the apex of our civilization. Whether we have or not is not for us philosophers to discuss, but belongs to the historian. We are discussing the path of progress apart from the question whether we shall progress or not. If we are to move forward, both science and religion will be differentiated more and more, and each will be given its own field and its own rights. Such is our contention philosophically. We argue it from the very nature of both interpretations.

PART FOUR

THEORETICAL ETHICS

CHAPTER LII

THE NATURE OF THE GOOD[1]

The problems of action or life are solved but in part by religion. There are also the particular problems; and these belong to Ethics.

THE philosophy of religion has shown us that man must bring his life into harmony with the life of the universe at large, with the infinite or ideal world. The attempt to interpret this ideal world of which the individual life is a member and from which it gains its highest ideal, is religion. But further thought shows at once that if we desire a complete guide for life, we must seek for further truths than those which are taught by religion, for all truths have some bearing upon life. That is, besides religion, which gives man his highest and universal ideal, there must be a science that teaches him the ideal choice amid all the varying circumstances of life. Religion teaches us to obey the will of God; but a science dealing with the concrete problems of life can alone tell us what is the will of God in each individual act. Without these particular rules the will would be at a complete loss how to choose. Did we merely consecrate our lives to God and there stop, life itself would be a mere form, a mere empty residue after abstraction. Thus there is besides the universal ideal the concrete life of each moment, and in it we are called upon to deal with individual concrete problems. Now the science that gives us guidance in these individual problems is Ethics. Hence we may define ethics as the science of conduct. Further we shall divide ethics into two distinct parts: into Theoretical Ethics and Practical Ethics. The first formulates the principles of conduct; the latter, the empirical laws, or norms, of conduct, or again, the moral

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[1] *Historical Note.*

The student is urged to read the Introduction in Sidgwick's Outlines of the History of Ethics. 4th ed. London and New York, 1896. It is but nine small pages long; or in its place the second chapter, on The Origin and Development of Ethical Problems, in Hyslop's Elements of Ethics, New York, 1895.

Literature.

For the general history of ethics the beginner is referred especially to Sidgwick's Outlines of the History of Ethics, and to the very interesting chapters of Paulsen's Ethics contained in the first book; also the second chapter of Hyslop's Elements. These books will introduce him to a wider literature on the subject.

For systematic ethics the beginner desiring further study should read carefully Hyslop's Elements of Ethics (for the purely philosophical and theoretical problems and for further references), or in its place Muirhead's Elements of Ethics, Scribners; or Mackenzie's Manual of Ethics. 4th ed. London, 1900. For an exceedingly interesting discussion of ethics, including the more general of its practical problems, the student should not fail to read Paulsen's System of Ethics; cf. also G. H. Palmer, The Field of Ethics. Boston and New York, 1901; and Watson, An Outline of Philosophy, Chapters IX and X.

Among other important works on ethics are the following: —

John Stuart Mill, Utilitarianism. New ed. 1871.

Division of Ethics into Theoretical and Practical Ethics.

H. Sidgwick, Methods of Ethics. 5th ed. London and New York, 1893.

T. H. Green, Prolegomena to Ethics. Oxford, 1883. 2d ed. 1887.

James Martineau, Types of Ethical Theory. 2 vols. 3d ed. Oxford and New York, 1891.

Herbert Spencer, Principles of Ethics. 2 vols.

F. H. Bradley, Ethical Studies. London, 1876.

Leslie Stephen, The Science of Ethics. London, 1882.

H. Calderwood, Handbook of Morality. London, 1872.

Eduard von Hartmann, Phänomenologie des sittlichen Bewusstseins. 1879.

Wilhelm Wundt, Ethics: An Investigation of the Facts and Laws of the Moral Life. Translated from the second German edition by E. B. Titchener and others. London and New York, 1901.

H. Höffding, Ethik. (German translation by F. Bendixen. Leipzig, 1887.)

Th. Ziegler, Sittliches Sein und Sittliches Werden. Strassburg, 1890.

C. Sigwart, Vorfragen der Ethik. Freiburg, 1886.

J. Baumann, Handbuch der Moral. Leipzig, 1879.

G. Simmel, Einleitung in die Moralwissenschaft. 2 vols. Berlin, 1892–93.

S. E. Mezes, Ethics: Descriptive and Explanatory. New York and London, 1901.

code. The former is a discipline of philosophy, whereas the latter is an empirical science.

The problems of Theoretical Ethics.

The problems of theoretical ethics may be grouped under two headings: the Nature of the Good and the Nature of Moral Responsibility. We shall deal with the former problem in this chapter.

The Nature of the Good.

What is the nature of the good? From what has gone before, we may at once conclude: the good is an ideal, a law of our wills. The good is that general law or ideal of the will that it tries, or, to be consistent with itself, must try, to realize in all its doings.

Two meanings of "the Good." (a) The criterion of the Good. (b) The reverence of the will for the moral law.

There has been much dispute among moralists in determining precisely what this ideal of the will is; but if two distinct problems are kept apart, much of the difficulty may be avoided and the many views reconciled. In short, our term "the good" is equivocal. There are a number of elements in the good just as there are in the true. Hence if we use the term in a narrower sense, and denote by it one of these elements, we may readily give rise to a misunderstanding; and this is so especially when we emphasize one of the elements to the exclusion of the others.

The good contains a number of elements. First of all there is the ideal which the will sets up for itself; then there is the totally distinct fact, the actual conformity of the will to its ideal; and even this latter fact may be of two kinds, — the conscious conformity to the ideal and the unconscious. The ideal which the will sets up for itself we may call *the criterion of the good.* It describes the most general characteristics of that which the will seeks to bring into existence. It tells us the end or aim of the will. The other element, the conscious submission of the will to the law that it has set up, is nothing more than the will being consistent with itself. This latter, therefore, is the *act* or *conduct* which is called good or bad, whereas the former is merely the criterion that guides the will in acting.

The Reverence for the Moral Law.

Let us first discuss the conformity of the will to its ideal. You and I never call an act good or moral that is done quite unconsciously, quite without any motive. Did we do so, we should call inanimate objects moral, for often by mere chance they bring to pass what our wills approve. Thus, we should call an excellent clock moral because it fulfills so well the purpose for which it was constructed. Moreover, we exclude from the good or the moral not only acts of inanimate objects, but also those acts which we do quite unintentionally, or quite without forethought. Of course the habit or other cause of our unintentional act may have been the result of a deliberate choice or intent, on our part, and in that case may be called good or bad. Thus, our bad habits that we might have prevented or broken may be charged against our wills; and hence the results of these may be just as immoral as though we had deliberately done the evil deed. Yet, even in this case, it would be the original conscious act of the will that could alone be called the sin. Hence, we may conclude: That act alone is moral or immoral which is done consciously in accordance with or in rebellion to the moral law. Further, we may say that the only good thing in all the world is the good will, the will acting in conscious obedience to the moral law. No other thing or act but this can be called good. *Goodness is thus reverence for the moral law.*

The Criterion of the Good.

But clearly, if a good life were merely a reverence for the moral law, it would be as far removed from actual life as truth would be from actual knowledge, did it consist merely in a longing to be consistent. To know means to deal with individual problems; to be good or virtuous, too, means to perform countless different deeds. But what shall guide us in deciding which of these deeds are good and which bad? To answer this question we must analyze the will's reverence for its acts. What is it ultimately in the concrete doings of life that makes one result desirable and another undesirable, that makes one the object of the will's approval and choice, the other of its rejection and condemnation? What constitutes the principles of the moral law, or the ultimate criteria of the good?[1]

Two theories: Hedonism and Perfectionism.

This question has been answered in two ways and hence has given rise to much dispute. But the two ways are not necessarily contradictory, and therefore they admit of reconciliation. One party maintains that "pleasure or happiness" (excellence of *feeling*) is the criterion of the good or the end of conduct. The other that "virtue or perfection" (excellence of *being*) is such. The former theory is called Hedonism, the latter Perfectionism.

Hedonism.

Kinds of Hedonism.

Hedonism, then, is the theory that makes pleasure the ultimate end of conduct. "But the pleasure sought may refer either to that of the *subject* or to that of the *object*, to the individual himself, or to others comprising the family, tribe, or society at large. On this basis Hedonism takes two forms, according as the pleasure is individualistic or universalistic, egoistic or altruistic. Hence there are two subdivisions of the theory, which we may call *Egoism* and *Altruism*, or *Individualism* (ethical) and *Socialism*. Utilitarianism may be added as combining both of them. Egoism or Individualism asserts that all conduct must be judged as good or bad, according to the consequences to the individual subject. Altruism or *Socialism*, on the other hand, includes the pleasure or happiness of others and may require the sacrifice of some happiness on the part of individuals, perhaps the minority, to that of others, the majority. The question of kinds of pleasure here does not enter into the definition or division of the theory."[2]

Criticism of Hedonism.

But it is just this latter statement that shows the inadequacy of hedonism. Pleasures do differ in kind, and the followers of this school have themselves come to admit

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[1] For a very clear presentation of this subject the student is advised to read Chapter VIII (The Theories and Nature of Morality) in Hyslop's Elements of Ethics.

[2] Hyslop, Elements of Ethics, p. 354.

The Hedonists must admit a qualitative difference between pleasures, and must include this in the criterion of the Good; and further, this qualitative element is not itself pleasure.

it. The will does select not merely on the basis of a quantitative difference between one pleasure and another or between one pain and another, but also on the basis of the *character* or *quality* of the pleasure. All pleasures are not on the same moral footing; and if this be so, some other element than the mere pleasure must enter in as a criterion of the good.

"'It is quite compatible with the principle of utility to recognize the fact that some *kinds* of pleasure are more desirable and more valuable than others. It would be absurd that while, in estimating all other things, quality is considered as well as quantity, the estimation of pleasures should be supposed to depend on quantity alone.

"'If I am asked what I mean by difference of quality in pleasures, or what makes one pleasure more valuable than another, merely as a pleasure, except its being greater in amount, there is but one possible answer. Of two pleasures, if there be one to which all or almost all who have experience of both give a decided preference, irrespective of any feeling of moral obligation to prefer it, that is the more desirable pleasure. If one of the two is, by those who are competently acquainted with both, placed so far above the other that they prefer it, even though knowing it to be attended with a greater amount of discontent, and would not resign it for any quantity of the other pleasure which their nature is capable of, we are justified in ascribing to the preferred enjoyment a superiority in quality, so far outweighing quantity, as to render it, in comparison, of small account.'"

"Put plainly, this is simply saying that the pleasures of appetite are different in kind as well as degree from the pleasures of knowledge, so that the merit of pursuing the latter compared with the former depends wholly upon the difference of quality in the pleasures. Similarly the moral difference between malice and respect, theft and honesty, avarice and generosity, deceit and veracity, selfishness and conscientiousness, is the difference in quality of the pleasures that accompany them. According to this it is not the difference in quantity, but the difference in quality of pleasure that distinguishes between the character of lying and the character of truthfulness. This seems a very plausible solution of the problem, but it is nevertheless an entire abandonment of utilitarianism and its principles. The name, of course, is retained, but the thing itself is abandoned. We must make this clear.

"First, all utilitarianism previous to Mill was based upon the notion that pleasure was the same in kind, and that the forms of it differed only in degree. The adoption of Mill's doctrine of qualitative differences was an abandonment of this position. Second, in Bentham's theory 'pleasure' was a *generic* term comprehending qualitatively every case of its occurrence, and actions did not differ in their quality, but only in the degree of pleasure and pain incident to them. But in Mill's doctrine 'pleasure' is not only a generic term, but that 'pleasure' which determines the right is *specific* and denotes a quality which is not found in the same term generically taken. Now, this view of it is a contradiction. If 'pleasure' can denote the satisfaction or agreeable feelings that follow actions without distinction of kind, then it is not the pleasure that makes the distinction. On the other hand, if it be the pleasure that determines the distinction between right and wrong, then this term cannot apply to the agreeable feelings that accompany wrong actions. In other words, pleasures cannot have differences of kind. Again, if pleasure denotes agreeable feeling wherever it occurs, and without regard to distinction between moral and immoral conduct, then *the quality that determines that distinction is other than pleasure.* On the other hand, if that quality is pleasure, there is no difference in kind, and those are not pleasures which accompany wrong actions. We cannot play fast and loose with the term pleasure. We cannot give it a generic and a specific use at the same time. We only succeed in duping ourselves and others into the bargain. No theory can stand upon an equivocation, and this is precisely what utilitarianism attempts to do when it talks about the "kinds of pleasure." As a loose and popular phrase it may be well enough. But it can only serve as an inaccurate substitute for a desired term which shall express *pleasure plus a quality other than pleasure*, if pleasure is to express the whole class of species included under its usual application. The true meaning of the term is generic in which it expresses the common qualities of a class whose differentiæ are other than the genus (conferentia). This is putting the case technically, but the same may be expressed by saying that pleasure expresses what is similar in all the cases in which it occurs, while the so-called differences in kind express something other than the pleasure in order to determine the qualitative distinctions of the species. Mr. Martineau expresses this conception of the case very clearly and pertinently. His language is worth quoting. 'If there are *sorts* of pleasure,' he says, 'they must be something more than pleasure; each must have its *differentia* added on to what suffices for the genus; and this addition cannot be *pleasurable quality*, else it would not detach anything from the genus: to mark a species at all, it must be an *extra-hedonistic quality*, and each sort must have its own; and so far as one is preferable, as a kind, to another, it is so in virtue of what has *other than pleasure;* and the comparison of them all *inter se*, considered as different kinds, must turn upon their several extra-hedonistic qualities. All that they have from the genus is quantitative; and till you get beyond the pleasurable as such, quality does not exist.' "[1]

Perfectionism. Thus a new theory must be maintained in place of hedonism, a theory that includes all the truth of hedonism, but at the same time accounts for the qualitative elements that hedonism must neglect. This theory is perfectionism. The criterion of the good is excellence of being, and this includes excellence of *feeling*.

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[1] Hyslop's Elements of Ethics, pp. 376–379.

But what constitutes excellence of being? We have already said that morality has to do with finite relationships, and this thought must be retained in our answer. *Excellence of being is a perfect adjustment to our office in an ideal finite world.* Let us explain this answer at length.

Perfection means the complete adjustment of ourselves to that ideal world of which we are members.

You and I mean by the term perfect as applied to any object the ability of that object to meet satisfactorily all the demands which it has been made to fulfill or is destined to fulfill. Thus we speak of a perfect clock or again even of a perfect day and of perfect weather. In any case we have in mind its adjustment to the office it is ideally intended to fulfill. Now the perfection to which the moral law bids us attain is likewise a complete adjustment of ourselves to the world of which we are members. This world is, for you and me, the great social and material world made up of our earth, and especially our own land and of the peoples living there, and above all of our own nation, community, social circle, and family. It is, in short, our ideal earth and man's complete civilization, and of course keeps changing as a higher civilization and a better knowledge of things comes into being.

You and I are born into a particular community. We are born with special talents and opportunities, and we soon come to feel that we are fitted for some special station in life. All this means that we form an ideal of ourselves as members of our own ideal world. Now the perfection that we seek is the complete realization of this ideal self, an ideal member of our community, of our nation, or of humanity at large. This ideal self will differ of course from man to man, in fact, will differ for the same man placed in one community, from what it would be were he placed in a different community. Thus if some calamity forced us to live in a semi-barbarous land, our ideal of self would at once be changed from what it had been. Perhaps among the new people our whole manner of life would have to alter, and it might even be that we should have to become ourselves less civilized than we were before.

In short, the ideals of one age or of one people may be less and rightly less exalted than those of another. Civilization depends upon so many factors quite beyond our control, and to these we are obliged to adjust ourselves both as a society and as individuals.

In an ideal world happiness must reign;

But in reply to all this it may be asked: What warrant have we that an adjustment to such a world will bring with it happiness? We answer: There is excellent reason to believe that it will; for, as Mr. Spencer has urged, adjustment to environment means welfare, and welfare means usually pleasure. A creature so constructed that it suffered pain when adjusting itself to environment, would probably become extinct. Hence in general we may say that where adjustment is slowly taking place within any race, the individual is physiologically so fitted to his environment that pain is not the rule, but the exception. But all this aside. We have said that perfection means an adjustment to an *ideal* world. Now no world can be to us ideal wherein pain rules supreme. An ideal world must be a happy world, even a relatively ideal world. Therefore, if you or I were placed in a world in which happiness were next to impossible, where pain and misery were necessarily and relatively forever supreme, such a world we could not look upon as ideal; and since we could form no ideal of it, there would be but one moral law for us, and that would be to labor for the extinction of life in such a world. In short, our definition compels us to seek for the happiness or the annihilation of our world.

If the relative pessimists be right,[1] if "our world" be one in which pain and sorrow, sin and misery, rule and will ever rule supreme, or again if advancing civilization mean only increasing sorrow and pain, then we have but one course open to us, — let us labor to bring about an ideal world, and that would be the annihilation of life or of civilization. But as long as mankind at large seems overwhelmingly convinced that civilization makes for happiness, that our world civilized would be ideal or more ideal, so long the pessimist will have a hard time getting men to work for racial extinction. However, as philosophers we are interested in principles, and we need not assume the responsibility here of disproving pessimism. Our principle is broad enough to meet even that view of things. It even leaves open the question whether there are not extreme cases where suicide is justifiable. If there be such a case, then it would be an excellent instance of a man finding his world one that cannot be made ideal except by self-annihilation. Ultimately it is such a principle as that which justifies the putting to death of a suffering beast.

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[1] The student is strongly advised to read concerning pessimism the chapter, in Paulsen's System of Ethics, entitled "Pessimism." Cf. also

but this leaves room for Relative Pessimism.

Thus we find that the criterion of goodness is a perfect adjustment of self to our ideal office in an ideal world. The circumstances of our life determine what that particular office shall be; so also do they, how large the ideal world shall be of which we are members. It may be a very small world, perhaps only a coral island in mid-ocean, perhaps only a clan, perhaps a city, perhaps our whole earth. History shows us how with advancing civilization the world in which you and I live keeps getting larger. As members of a great and powerful Christian nation, we feel that we owe something to every race and tribe of men, that even the lowliest savage deserves something at our hand.

As civilization grows, so also does our ideal world; and Relative Pessimism simply forces us to live for a larger world than the one that we condemn, and thus denies Absolute Pessimism.

As long as optimism reigns in our hearts, we shall make it our ideal to strive for the idealization of this world.

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his book: Schopenhauer, Hamlet, Mephistopheles: Zur Naturgeschichte des Pessimismus. 2te Aufl. Berlin, 1902.

Should the time ever come when we or any peoples are so ill adjusted to the world in which we have to live that the work of such an idealism becomes impossible, then no doubt the doing away with the evil world must become our ideal. However, this does not mean that our pessimism really becomes universal. It means rather that we look to a larger world which would be more ideal, were our smaller world removed from it. Belief in the ideality of the universe as a whole must be assumed even by the most extreme pessimist. Otherwise every form of action becomes rationally paralyzed.

Back of all there is an ultimate ideal that we are striving to realize; and though the particular life each man is morally called upon to lead is relative to the particular environment into which he is born, still his ultimate ideal cannot be relative. In short, the moralist is forced sooner or later to tell us, what decides whether any given world is ideal or not, in the light of what principle does man behold the true goal of his life, what ultimately is the perfect state.

The ultimate moral ideal: ideal spirituality.

This is a difficult question to answer. Still some answer can be given. The perfect state is *ideal spirituality.* But what is this? We have already learned something about its nature in our study of the theory of knowledge and of the nature of religion. Ideal spirituality, or, as we may call it, our consciousness developed to its ideal state, means that we have become godlike. But what does this mean? It means that there is inherent in our attempt to interpret the world the ideal self that has the ability to interpret perfectly. In short, to be godlike means to be the possessor of all truth, to be the possessor of all beauty, to be the possessor of all happiness, and finally to be able consciously to bring complete harmony into our life. Thus to be seekers after truth and to realize to the full our ability to gain truth is an ultimate end of life. Hence the principle; truth as such, truth in and for itself, is an ultimate end. Again, it is an ultimate end of life to perfect ourselves in judging of the beautiful and to bring the beautiful into existence. Hence the beautiful is an end in and for itself. Again, character or the ability to be more and more masters of our own life and welfare and happiness is an end. To be more and more conscious of fulfilling God's will in our lives, to be bringing absolute harmony into them, in short, to be religious, all this is likewise an ultimate end. In one sentence, the end of life is self-consciousness raised to its ideal state as knowledge, as feeling, and as will.[1]

We see in this principle that morality consists in the realization of our ideal, and that this ideal must ultimately be *a priori* or axiomatic. This does not mean that the moral law is made up of axioms. It means rather that the principle by means of which the moral law is discovered and formulated is an axiom. Only the facts and a knowledge of the facts can inform us what our particular ideal of the world should be, what our particular ideal office in this world is, and how best we can fulfil that office. Therefore the discovery and formulation of the moral code belongs not to theoretical ethics or philosophy, but to practical ethics, one of the special sciences.

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[1] As Mr. Hobhouse tells us, the evolution of life does not mean necessarily progress, often it means a movement downward. It is only of the mind that we can truly assert progress. Cf. Mind in Evolution, by L. T. Hobhouse. London and New York, 1901. Chapter I.

CHAPTER LIII

MORAL RESPONSIBILITY[1]

Moral responsibility is said to imply freedom of choice.

THE problem of moral responsibility has given philosophers much trouble. It has been argued that to be moral, that is, capable of moral action, man must have freedom of choice. Opposed to all other events in the world, which proceed in accordance with the strict law of necessary sequence, our acts of will are free. We may do other than we actually do do in any given case; or better, we could have done differently than we did do. It is argued: How, unless this be true, can any one be held morally accountable for his acts? He could not have done other than he did; why then is he to blame?

But we have denied such freedom.

To us this whole method of dealing with the problem seems a misunderstanding of its true nature. From metaphysics we have learned that the law of causation is universal. Mind as well as nature is under the dominion of the law of necessary sequence; and this means what it says. Theoretically, mental events and acts of the will can be predicted with all the surety of merely mechanical events. Practically, any such prediction may lie beyond our power. To estimate the direction that billiard balls will take on a table is indefinitely simpler than to solve the complicated problem of the direction of most acts of will. But then the enormous complexity involved in will-action is perhaps no greater than that in most mechanical action. Think of the mechanical problem involved in the life and growth of any animal, a problem perhaps too intricate for man to hope ever to solve. Yet who doubts that the processes of growth proceed in accordance with the law of necessary sequence, and that a mind acquainted with the data and conditions and laws could predict the result. In short, the phenomena of will may be too intricate for us to predict with much surety in most cases; still theoretically the whole process is determined, and our choices have to be just what they are.

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[1] *Literature.*

The student is referred to Hyslop, Elements of Ethics, Chapters IV and V; also to Muirhead, Elements of Ethics. Both books will give him further references.

For the general subject of the psychology of voluntary decision, cf. G. F. Stout, Manual of Psychology. Book IV, Chapter X. "Voluntary Decision."

To give up this position would mean the complete revision of metaphysics, and that in a way which would mean, if our results are correct, the overthrow of science and the establishment of skepticism. Our wills interfere not merely in the mental world but also in the physical world; and therefore, the moment we remove them from under the law of necessary sequence, we remove also the remainder of the world. There would then remain for the law of causation only limited fields of nature, that is, those not interfered with by man's will, or portions of the world during the intervals between such interference. We readily grant that in practical life this is very much the way in which we do interpret nature. We do look upon a human act as a sort of starting-point, and feel that we have explained an event when we have brought it back to such an act of will. But this is merely a practical difficulty. As science progresses we do not stop with human acts as final explanations, for human acts are being brought under law. Thus we are trying to win for ourselves more and more that knowledge which will enable us to predict human conduct as we predict natural phenomena. Practical ethics, the science of education, politics, economics, and other like sciences must ultimately maintain this principle and be more and more fully conscious of maintaining it.

Moral Responsibility does not imply Freedom of Choice. Morality is but the self-realization of the will.

But we shall be asked: What becomes of morality and moral responsibility, if you deny man's freedom of choice? We reply, *Man's freedom of choice has nothing to do with morality in its ultimate nature.* What do we mean by moral responsibility? Do we mean that punishment can be justified only in case man is free? It is sufficient answer to this to say that the only rational punishment is either corrective or preventive punishment, and that both assume that we can determine a man's conduct from without. Punishment out of revenge is immoral and irrational. It is only such punishment that need seek for some deeper excuse for its existence. But how can there be a morality without freedom? We reply, You have a false idea of what constitutes morality. Morality is not a law inflicted on man from without. If it were, then indeed we should have to put man in a position that he could obey it or otherwise hold him irresponsible. But the moral law has as its author the very will that obeys the law. To be good means for our will to be consistent with itself. It itself is the master of the situation, it obeys itself. From the very start it is moral; and if it were not moral, all the powers of earth could not make it such.

It is ultimately the same question that we have in knowledge. Man is rational, man's nature is on the side of reason, or knowledge; otherwise we should be helpless to make him rational. The laws of rationality are not something foreign to the reason, but spring out of the reason. When we know, when we grow in knowledge, this is but the logical evolution of our own reason. It is the reason fulfilling its own laws, realizing its own ideal. So also in morality, our wills are but realizing their ideals. Morality is ultimately then only the self-realization of an ultimately moral will.

Sin is not rebellion, but is due to the limitations arising from the finitude of the human will and intellect.

But you ask, How, then, do we ever sin? We ask in reply, How do we ever fall into scientific error? The two are much the same problems. Both are ultimately contradictions of our ideal selves. Complete moral self-realization is as far beyond our finite powers as is complete intellectual self-realization. It is simply a fact that we are finite in both fields; and any further explanation would have to be a psychological one. We are ignorant because we lack data, we lack the ability to attend, to discriminate, to synthesize the elements of our experience. So, too, in the moral world we lack that complete insight into our own conduct and its character. We lack the ability to keep all the elements of a moral struggle and problem before our consciousness, and so we fail often to choose the right.

We have to grant that ultimately the will is moral.

Ultimately we have to suppose that if the mind were granted sufficient information, it would always be in the right in its knowledge, it would never be guilty of intellectual error. If we do not grant this, what hope is there for rationality at all? Is not this a presupposition that must be granted, unless knowledge is to be put at once among the impossibilities? Ultimately man must be in a position to see truth directly, to intuit truth. If not, then you are a skeptic, and the whole of our knowledge is reduced to chaos, such to remain forever. Ultimately, too, the same must be said of the will. If the will be in a position to see clearly all the moral elements of the situation, it will then choose the right. If you do not grant this, you deny the ultimate morality of the will; and with that denial you will lead us into moral skepticism. No outside power can force morality upon the will. If it is not ultimately the will's nature to be moral, as it is the mind's nature to be rational, then good-by to morality forever. If morality be not ultimately the self-realization of the will, then morality is purely artificial or arbitrary, and away with it as so much superstition.

But here you will object, "Men are often knowingly sinful." True enough; but still the only way you can hope to reform the sinner is by giving him more knowledge. Your very punishment enables him to realize, to picture mentally and more forcibly, the consequence of evil. We may often know things without knowing them adequately or completely. We may often, as old fogies, see the truth one instant, yet by habit long established be utterly unable to make it really part of our intellectual make-up. That is, psychology explains why we may knowingly do wrong, or why we may be conscious that we are not doing right. It enables us at the same time to maintain that more training intellectually or the ability to associate a large number of elements now but feebly associated will alter conduct. We must maintain that when a man knowingly does the wrong, it is because he lacks a full realization of the moral situation. Just the same is true where minds knowingly accept for themselves falsehoods and believe in them. We can be knowingly afraid of truth and refuse to accept it.

The other view seems to be the outcome of an anachronous theology. We must presuppose an ultimate harmony between our will and God.

Has this view lost for morality any of its true elements? We fail to see that it has. The older view was necessary largely because of anachronous theological beliefs that went with it. Morality was something external to man, given to him in a more or less arbitrary way by God. Man had to justify God's holding him responsible. Therefore man had to be declared free. But ultimately could we not ask why man should yield to the authority of God? Why not rebel? If he obeys, he must do so because his will regards itself, its true nature, to be in harmony with God's will and therefore feels itself ultimately moral. If the will did not so feel, then morally it should rebel against God and take the consequences.

But such a view of the world and such a view of the relation between God and man is irrational. Man and the world in which he lives are not at swords' points. Were they so, we should have skepticism. The truth and reality must harmonize or there could be no knowledge. The moral law and reality must harmonize or there could be no morality. Man and God are not foreign natures. Man, we may say, in the words of religion, is made in God's image. To obey the will of God is man's self-realization, just as to win the truth is the self-realization of man's reason. We may even say, we know God only through knowing our ideal self; and we know God's will only through knowing the ideal of our own wills. If God be something wholly foreign to our minds, then indeed God is unknowable, and we are forced whether we will or not to neglect his existence absolutely, which as we have shown is the same as declaring belief in him sheer nonsense. He would be a thing-in-itself, a transcendent world.

Punishment.

But finally you object, Is not sin to be punished as sin? We reply, By all means. Sin is punished as sin. What is sin? It is a failure to realize the ideal self. What is the punishment? Why, just the failure itself. The punishment of ignorance is ignorance, and the punishment of sin is sin. Both are forms of self-annihilation. The punishment of sin and the reward of virtue are summed up in those well-known words of the Apocalypse: "He that is unrighteous, let him be unrighteous still; and he that is filthy, let him be filthy still; and he that is righteous, let him be righteous still; and he that is holy, let him be holy still." Such ultimately is life. Our true self is to be godlike. Not to realize that true self is to contradict our own true nature.

PART FIVE

ÆSTHETICS

CHAPTER LIV

THE NATURE OF THE BEAUTIFUL[1]

The twofold problem of Æsthetics.

THERE are two main questions that æsthetics is called upon to answer. They are these: What is the character of the æsthetic judgment, or the nature of the beautiful? Does the æsthetic judgment claim objective validity, or universality? The latter problem depends upon the former, in fact, exists only because of one of its solutions.

I. *What is the nature of the Beautiful?*

(a) It is merely the agreeable.

What do we mean when we call an object beautiful? We may mean its ability to cause an agreeable sensation in us, and in others of like tastes and general culture. In short, *all that we then mean by the beautiful is the agreeable.* We describe simply our mental states as influenced or affected by some given object.

Criticism of this answer. Experience shows us directly that we do not mean by

If this be the æsthetic judgment, then æsthetics is synonymous with part of psychology. It is simply science, and philosophy has no more to say about it, for there is no philosophical problem distinctly æsthetic. But this doctrine is false, for we do not mean by the beautiful the

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[1] In this chapter we shall attempt to do no more than to point out briefly the main problem of æsthetics as a discipline of philosophy.

For parallel reading the student is referred especially to Chapter XII, in Ladd's Introduction to Philosophy. New York, 1890.

Chapter XII, in Watson's Outline of Philosophy.

Lotze's Outlines of Æsthetics, translated and edited by G. T. Ladd. Boston, 1885. pp. 3–20. Liebmann, Zur Analysis der Wirklichkeit. 3te Aufl. Strassburg, 1900. Dritter Abschnitt.

For a longer discussion (including the separate arts) and for a general history of æsthetics, cf. The Philosophy of the Beautiful, by William Knight. New York, Scribners. Parts I and II. These two books of Professor Knight will also introduce the reader to further literature. Cf. also Allgemeine Aesthetik, von J. Cohn. Leipzig, 1901.

the beautiful merely that which gives sensuous gratification.

merely agreeable. Do you ask what proof have we? Ultimately, only the answer that we receive when we ask each one what he means by beauty, and also the fact that we deal very differently with art from what we do with any mere instrument to promote sensuous gratification. In the words of Professor Ladd: "Experience enters a protest if we try so to interpret the facts as throughout to identify the agreeable and the beautiful. Nothing, indeed, can be called beautiful which is not, in so far as it is beautiful, æsthetically agreeable. Moreover, the judgments of men differ as to what should be called beautiful, even more than they differ concerning the morally good and the sensuously pleasant. But of the beautiful — like the morally good and unlike the agreeable — we affirm a universal and objective value and validity. The agreeable is a state of, or an event in, some sentient mind. Its objective correlate consists in nothing but a certain peculiar arrangement and mode of change of material molecules, both within and without the nervous organism of the sentient being which has the agreeable feeling. This fact is a matter of scientific knowledge, rather than of ideal significance.

"The beautiful is distinguished from the agreeable by the possession of two characteristics in which the latter is deficient. These are objective validity, and ideal worth. By use of these terms we designate, in a preliminary way, the most marked differences between the beautiful and the agreeable. That differences corresponding in some sort to these terms do exist, we may confidently appeal to experience to show. We know that, strictly speaking, the agreeable exists only as a state in us. We believe that the beautiful really exists in nature, in art, in spiritual character and life. Scientific knowledge asserts that the objective correlate or cause of the agreeable feeling in us is not necessarily something agreeable in that which is other than ourselves. On the contrary, æsthetic faith affirms that the objective correlate of the peculiar pleasurable feeling with which we greet the apprehension of the beautiful is itself beautiful.

"Moreover, the conviction is invincible, that the beautiful has, in some sort, a right to be; and also that it ought to be appreciated. The proof for such statements as these is abundant. The way in which the old-time saying, *De gustibus non disputandum*, must be understood if the interpretation is true to the dictates of æsthetical reason, is in proof here. When, for example, one contends with one's friend that he ought to like olives, or ought not to like onions, the seriousness of one's contention is the measure of one's departure from a truly rational procedure. But it requires a stretch of charity that seems to carry it beyond reason for one not to feel that the failure in one's friend to recognize and admire the beauties of nature or of the choicest art witnesses to a defect in his rational constitution. To differ about the merely agreeable can end only in stating the fact of difference; and, perhaps, the causes (æsthetically indifferent) in the constitution and habits of the organism that explain the fact. But dispute about the beauty of this or that object implies an appeal to reasons that have an objective and universal application and value."[1]

(b) Beauty is an ideal.

Beauty is not the sensuously agreeable. It is more. Beauty is an ideal, and an object is beautiful in as far as it fulfills the conditions of that ideal.

But the ideal itself can be expressed only in the vaguest terms.

But what is our ideal? This hard question we can answer more easily by telling what it is not. It is not the useful, nor does our satisfaction spring "from interest in the object related to ourselves." It "excludes the idea of definite purpose." "The products of art must appear as free from conscious design as if they were products of nature. The beautiful cannot be produced according to rule; it must proceed fresh from the hands of genius."

But can we give no positive answer? Only in vague and most general terms. There are criteria of the beautiful such as those just mentioned; and the assertion of beauty, like every judgment, must be consistent with itself. But the moment we attempt to find some definite picture of what constitutes beauty, we fail. What, for instance, is the common or universal element, the beauty found in music, painting, architecture, poetry? At once it appears a hopeless task to give any answer. Beauty is an ideal that enters into our judgments, but the description of that ideal so that we may intuit it in its general or universal character is out of the question. We can point to this object or to that and say, they are beautiful. We can point to another and say, it is not beautiful. But there can be no picture of beauty as universal.

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[1] Introduction to Philosophy, p. 327 f.

Beauty reveals the infinite whole, the world-ideal, in the part, or finite object.

Is it then impossible to give any answer further than to assert that the beautiful is an ideal? No, for we shall connect this ideal directly with the ultimate principle of religion. The beautiful object may be described thus, "The divine meaning of the world is revealed through it, but it is not completely realized in it." We find in the finite object the ideality that we ascribe to the world as a whole. Or, as Professor Watson expresses this thought, "It is just the infinity of the beautiful object, *i.e.* its power of revealing the whole in the part, that gives rise to the peace and harmony of the whole man, and lifts him above the allurements of sense and the strenuous effort of the struggle after goodness."[1]

An explanation of the vagueness of our ideals.

All this is vague enough, if we try to form any concrete picture. Still the same thing may be said about the very principle of religion, the ideality of the real. In fact, all our ideals are vague; but that they are so, is not an insuperable difficulty.

(*a*) Vagueness is to be expected in them.

We can look at this vagueness from two points of view. First, *our ideals themselves are vague.* Thus, when we say that the real is the ideal, clearly we can form no picture of the universe and its ideality. We are asserting something vastly beyond the power of our intuition. The content of our judgment is simply the assertion of an ultimate harmony between the will in its struggle toward self-realization and the world of which it is a member. Again, we may illustrate the same thought by showing its bearing upon our knowledge. We identify the true and complete interpretation of the world with knowledge; yet our knowledge as it actually exists is but finite and often seriously erroneous. None the less we assert that as we progress in knowledge, obeying the formal and material laws of thought, we approach the ultimate ideal of knowledge. In short, we can neglect the fact that our picture of the complete truth is most vague. We feel sure that in spite of this vagueness of our ideal, knowledge progresses toward it.

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[1] Cf. Lotze, Outlines of Æsthetics, Chapter I.

So also in religion. The ideal world in its completeness is beyond the power of our intuition; but as we struggle toward self-realization, we are assured that there can be no conflict between true self-realization and reality itself. In short, our principles have their main value not in what they enable us to picture, but in their removing obstacles from the way of the will and of the intellect, the one in its work of self-realization, the other in its work of forming absolutely valid judgments.

(β) Their development gradually clears up such vagueness.

Secondly, we may say that *our ideals, like our knowledge, undergo development.* The true ideal, like the perfect knowledge, represents the consummation of a development, the goal of evolution. The ideal that we have, like the knowledge that we have, is indefinitely removed from its perfect form; and, as a consequence, we can picture that form only in the faintest, vaguest outline, yet not so faintly nor so vaguely that our ideal becomes useless. If this were not so we should be forced back at once into skepticism. Inasmuch as the only truth is the truth that holds universally, it follows that if we are to have knowledge at all, we must interpret the finite in the light of the infinite, or of the universe at large; otherwise our interpretation would not be valid. Hence we must conclude, that as man intuits the facts and interprets them, he is able to find the infinite in the finite, that is, to find in the finite truths that hold universally, truths that do not conflict with the absolutely perfect interpretation. Now just as he does this in interpreting reality, so also does he do so in interpreting the good and the beautiful. From one point of view his work of interpretation may seem hopelessly finite, incomplete, and imperfect. It may seem that the element of universal truth is all but infinitesimal. Yet from the other point of view all we need is the infinitesimal to satisfy the demands of our argument. If there is any universal truth in science, in morality, in religion, and in art, then our point is won. We admit that man's interpretation may be indefinitely erroneous and imperfect. Yet at the same time, there is contained in it some of the infinite, and this at once raises it infinitely above absolute failure, and explains why our ideals may be so vague, and yet be universal and fully adequate to our needs.

II. *Are æsthetic judgments objective and universal?* **Yes, because all judgments are.**

To turn to the second problem of æsthetics. Is the æsthetic judgment universal and objective? We reply most confidently: It is. Our æsthetic judgments ar euniversal because they are judgments, for a judgment not claiming to be universal is no judgment whatever. The hard question is not this, but rather: What makes up the nature of the beautiful, or of the æsthetic ideal? Once we grant that this is not a judgment merely asserting a psychological fact, but is truly an ideal, then the other question is at once answered.

Discrepancy and fickleness in judgments form no argument against their objectivity.

It is no argument against the universality of our æsthetic judgments to show how indefinite they are or how liable men are to differ in æsthetic taste; for a similar objection might be urged against morality and even against science. At the most, you are but appealing to a psychological truth. Philosophically, your truth has nothing whatsoever to do with the case. Infants' judgments are universal. Their poverty and discrepancy do not militate against the objectivity of knowledge. In short, our ability to know develops, and so does our ability to judge morally and æsthetically.

PART SIX

PHILOSOPHY AS A SCIENCE

CHAPTER LV

THE DEFINITION AND SCOPE OF PHILOSOPHY[1]

Philosophy as a science.

WE have now finished our study of philosophy proper; but before closing let us turn to a brief discussion of it as a science among sciences. Such a discussion will treat of its definition and scope, of its different divisions, of its historical development, of its method, and finally of its meaning and value. In short, we shall look backward over the field that we have traversed and shall discover from a higher and broader point of view its character and boundaries. Our first topic will be the definition and scope of philosophy.

I. *Its definition.*

Professor James, in discussing how consciousness is always more interested in one part of its subject than in another, and how "it welcomes and rejects, or chooses, all the while it thinks," concludes his chapter in the following words: —

The division of the world into the me and the not-me.

"Taking human experience in a general way, the choosings of different men are to a great extent the same. The race as a whole largely agrees as to what it shall notice and name; and among the noticed parts we select in much the same way for accentuation and preference, or subordination and dislike. There is, however, one entirely extraordinary case in which no two men ever are known to choose alike. One great splitting of the whole universe into two halves is made by each of us; and for each of us almost all of the interest attaches to one of the halves; but we all draw the line of division between them in a different place. When I say that we all call the two halves by the same names, and that those names are '*me*' and '*not-me*,' respectively, it will at once be seen what I mean. The altogether unique kind of interest which each human mind feels in those parts of creation which it can call *me* or *mine* may be a moral riddle, but it is a fundamental psychological fact. No mind can take the same interest in his neighbor's *me* as in his own. The neighbor's *me* falls together with all the rest of things in one foreign mass against which his own *me* stands out in startling relief. Even the trodden worm, as Lotze somewhere says, contrasts his own suffering self with the whole remaining universe, though he have no clear conception either of himself or of what the universe may be. He is for me a mere part of the world; for him it is I who am the mere part. Each of us dichotomizes the Kosmos in a different place."[1]

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[1] On the various meanings of the term "philosophy" in the course of history and at the present time, cf. Ueberweg-Heinze, Grundriss der Geschichte der Philosophie. 8te Aufl. Berlin, 1894. Teil I, S. 1–5.

Windelband, History, section I.

Paulsen, Introduction, pp. 1–50.

Spencer, First Principles, Part II, Chapter I.

Sidgwick, Philosophy: Its Scope and Relations. London and New York, 1902.

But there is a more truly fundamental division, into the knower and the known.

Still, mysterious as is this division, which each one of us makes, of the world into two parts, the *me* and the *not-me*, how much more so is that profoundest of all divisions which sets over against the me and the not-me the perceiving mind whose objects they both are!

For this division we have to presuppose mind.

(*a*) Through consciousness the world is revealed to us;

If we turn our thoughts to some part of the lifeless world and then to man, what greatest of differences do we behold! The waves of the sea ride over its surface from continent to continent, they dash upon its shores from Greenland to the far South. In the form of mist their particles of water are drawn upward, and float as clouds over land and sea. As rain, they fall upon mountain and valley, and bring refreshment to every form of life. As brooks and rivers, they dash over the hillside, or flow quietly through the plain. But what do the waves and the drops of water know of the world that they help to make so grand and fair? Over and over again, through age after age, the same particle of water makes the round from the sea back once more into the sea; yet for it, except in the imagination of the poet, the world is not.

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[1] Principles of Psychology, Vol. I, p. 289.

But when we turn our thoughts toward the creatures that owe their very life to these same particles of water, toward man and beast, how great is the change of scene! For them there are earth and sky, sunshine and shadow, field and forest, leaf and flower, work and play, joy and sorrow. This difference that seems as wide as that between everything and nothing, is all to be found in the one thing that they alone possess, namely, mind. They have minds. For them, therefore, there is a world; but for the sea and the earth and the air there is no world.

Thus, in order that there may be for us a world, we must have a mind, we must be conscious. Accordingly, whenever it happens that through some accident or other cause we are for a time deprived of consciousness, for example, when we faint, are stunned, or are under the influence of an anæsthetic, the world, as far as we are immediately concerned, ceases to be. We are, as it were, dead, and have become like the stones which do not see, hear, or feel.

The same truth is brought home to us when we try to picture the mental life of those who are deprived of some of their senses. The blind are conscious of the existence of the world just as truly as we are; but they do not perceive that part of the world which we call light. They know from us that there is something in this world that they are unable to enjoy, and they find that we are able to do things by means of our sight that they without sight are not able to do. Moreover, in spite of all that we try to do to promote their welfare, we are not able to make good their loss; for we cannot, except in a few cases, restore their sight, and it is only by so doing that the deficiency can be made good. In short, the lack of this type of consciousness must prevent the world of light ever existing for them in the sense that it exists for us.

Thus we see that *consciousness is the means by which the world is revealed to us.* It draws back the curtain that conceals the world from our view; and whenever it leaves us, no matter for how short a time, we lose sight of the world. The curtain has fallen to; and we are left in that utter darkness where not even the darkness itself can be said to exist, for all has passed for us into an absolute zero. Thus we may draw as a first conclusion, *Consciousness is the Revealer of the World.*

(b) and through consciousness the world is also interpreted by us.

But we shall find that consciousness is even more. *Consciousness is also the Interpreter of the World.* But what does this mean? How shall we state the difference between an interpretation and a revelation of anything? By the latter we are made aware of the existence or presence of the given thing, we become conscious *that it is;* whereas by the former we come to know what sort of thing it is of which we have been made aware, that is, we realize *what the thing is.* Thus consciousness, as the revealer of the world, tells us THAT *the world is;* whereas consciousness, as the interpreter of the world, tells us WHAT *the world is.*

How many times do we behold objects such as stones, trees, birds, or beasts with whose names, origin, and characteristics we are not acquainted! These objects, as they stand before us, surely form part of the world revealed to us by our present consciousness. In short, they are revealed to us, but we are in the moment unable to interpret them. However, should a mineralogist, a botanist, or a zoölogist be with us, he could tell us much about these objects. He could interpret them not only by telling their names, but also by giving further information, such as their origin, their utility, their manner of life, and, in brief, their relations to hundreds of other things. Clearly the means by which the scientist would perform this act of interpreting is consciousness. Above all, it would be that sort of consciousness which we call memory, for what he has learned in books, and has seen in past experiments and observations, is now brought forward to supply that information which forms the interpretation.

But consciousness performs far simpler and more frequent interpretations than such instances as those to which we have just referred. In every perception we have examples. As we look about the room, not only do we see the many objects therein contained, but we recognize them; for they are not presented to consciousness as mere things, but as books, chairs, tables, doors, and windows. They stand out from one another. The one is higher than the other. This object is prettier than that. The objects seen in the mirror are reflections; and so we might continue indefinitely to describe the hundreds of interpretations that a few glances about the room would bring forth in us instantaneously.

Then again, psychology teaches us that we but gradually come to know the things which we see, hear, touch, and feel. This is most clearly seen in the case of one born blind and later in life given his sight by a surgical operation. For him a new world comes into existence, or rather to him a new world is revealed. But much time is required before he is able to interpret this new world correctly. He sees objects with which he has long ago been well acquainted through touch, but now he does not recognize them. Before him stands a familiar chair; but he does not see that it is a chair. It is not until he is brought into contact with it that he perceives what thing he has been seeing. Now for the first time he interprets what he has seen all along. In fact, the whole chapter of psychology that explains perception gives illustrations of what is meant by consciousness being an interpreter of the world, for in all adult perception just as much as in the higher processes of thinking we have repeated examples.

The psychological distinction between revelation and interpretation. All types of consciousness reveal, only knowledge interprets.

But we must not forget that wherever consciousness interprets, it also reveals. It is the seen chair, or it is the object thought about that is recognized. Hence, consciousness always fulfills the twofold function of revealer and interpreter.

There is, however, a great psychological difference between the two activities. All consciousness reveals to us some element of the world, no matter whether the state be a feeling, an act of knowledge, or a volition; for in all three we are brought into that contact with the world within or without us that we have spoken of as a revelation of the world. But in cognition alone do we interpret the world. In fact, to know and to interpret mean the same thing. Thus we get our conclusion. The world is revealed to us through all forms of consciousness, or they constitute our source of information; but knowledge is our sole means of interpreting the world.

Man's history the story of his progress in interpreting the world.

Now the history of human civilization is the story of how we have perfected little by little the interpretation of this world of which each one of us, as body and as mind, forms a part. Likewise, biography tells how the years of childhood, youth, and manhood are passed in learning to know better and better what this world is into which each one of us is born. We thus speak of the greatness of a civilization or of a man in proportion to the completeness and the perfection of this interpretation. In science man has been working out nature's laws, or uniformities; in religion he has been seeking to learn the meaning and destiny of the universe and of his own life as part of the universe; in ethics he has been judging of conduct in order to find what ultimate ideals of himself he should form, and how he may realize those ideals when formed; and in art he has been striving to express in concrete form the story of the world he gets through his emotional nature.

One of the chief interpretations that he has made is, as

Two stages in the development of interpretation.

Professor James told us, the division of the world into two parts, — the world without and the world within; but these parts are not interpreted equally well in the first stages of knowledge either in the growth of the child or in the course of advancing civilization. The first world that we come to know well is the world without, the objective world; whereas we come but gradually to look within, to behold our own selves, and to rise to self-consciousness. Moreover, even when we do become self-conscious, it requires long training and much skill before we are accurate observers and skilful interpreters of self. Thus concerning consciousness we may note two important things. First, as it develops, it comes but gradually to know self; and secondly, the beginning and maturity of this self-consciousness is comparatively late in the development of consciousness as a whole.

A third stage represented by philosophy.

Now these same truths hold of our interpretation of the world. Just as consciousness can look inward upon itself, can behold and interpret itself, so also can consciousness look in upon its work of interpreting the world. As in its first stage it was given to beholding and to knowing the world without, so necessarily was its interpretation an interpretation of the world without. Then later came the period when it came to know the world within, and now finally comes a third period when it looks not only upon the world without and the world within but upon its own interpretation of those worlds. It comes to see that it has been interpreting all the while, and then it commences to observe and to interpret even the interpretation. This third stage we may speak of as that in which our interpretation of the world comes to self-consciousness.

But come it early or late, interpretation must in time arrive at that same question with which each individual is sure to be brought face to face, the question, What am I? The answer to this question of interpretation is philosophy. Philosophy is thus our interpretation of the world coming to self-consciousness, or, in other words, our very interpretation itself becoming the object of interpretation. Therefore, for the time being, we shall define philosophy as the science of all interpretations of the world.

The Scope of Philosophy.

Thus far we have learned that philosophy is the science of all interpretations. We must now ask ourselves what we are to expect from such a science, what will be its scope? Clearly to answer our question we must inquire what are the problems presented by the interpretation of the world studied as such.

Its field to be carefully distinguished from that of the psychology of cognition.

Before all else we should distinguish between the field of psychology and that of philosophy; for psychology, too, investigates and interprets knowledge. This it does, indeed, but in a quite different sense. Knowledge, just as every other object that we study, has characteristics that connect it with other things, that, in short, make it of the same genus as they. These common properties we speak of as conferentiæ. But it must then have still other characteristics that distinguish it from all else. These are the differentiæ. Now any science of knowledge in order to be such must of necessity interpret knowledge from the standpoint of its differentiæ; and if there are to be two sciences of knowledge having different fields, then clearly they must divide these differentiæ between them and treat the one, the one set, and the other, the other set.

But what are the differentiæ of knowledge, and how are they divided between the two sciences? How shall we divide off the field of psychology from that of philosophy?

On the one hand, knowledge is a form of consciousness that has a certain genesis, that arises in uniformity with certain physiological changes in the nervous system, that bears certain relations to other types of conscious states, and that is built up through the elaboration of mental elements of a lower form. Thus, in general, knowledge, like every other event, has its own peculiar genesis and uniformities and in the widest sense relations with other phenomena. The science of these is psychology.

On the other hand, we have found that knowledge has a quite different characteristic, one that is nowhere paralleled, the characteristic that makes it alone the interpreter of the world. The science of knowledge in this sense is philosophy.

These two classes of differentiæ are quite distinct, but are none the less often confused. From this confusion there has arisen the tendency in some circles to identify psychology and philosophy, to do which is to fail to see in knowledge what primarily differentiates it from all other forms of consciousness, in fact, from all other things. Thus by distinguishing it from psychology, we may define philosophy nearer. It is the science of knowledge in so far as knowledge is the interpreter of the world.

Our final definition of philosophy.

Having now determined the definition of philosophy and distinguished it from psychology, we must finally ask, What is its relation to the other sciences? But in order to answer this question we shall have to deal briefly with the wider problem of the classification of knowledge.

II. *The relation of philosophy to the other sciences.*

In the history of primitive knowledge there comes a time when man consciously presents problems to himself, and deliberatively tries to answer these problems. Before that stage, be it in the life of the nation or of the individual, knowledge and the acquirement of knowledge must be haphazard. Knowledge comes to man rather than man goes in search of knowledge.

Primitive knowledge.

But just as the lowest creatures that must be bathed in a nourishing fluid and are hardly able to adjust themselves to any changes of environment are especially liable to encounter starvation; so also is that knowledge which lacks all conscious guidance prone to narrowness, inconsistency, error, and general inadequacy. Concerning the few matters with which the daily needs require the individual to be familiar at the peril of his life, there must grow up a comparatively extensive knowledge even among barbarians. But a wider knowledge cannot come merely by chance, that is, wholly by forces acting from without; it cannot come except it rouse the instinctive curiosity of the growing mind to active search. This search once begun is the beginning of that greater attempt of man to interpret the universe, which we call science. The former type of knowledge will always continue to exist and to awaken the interest and to suggest new problems; but the higher type of knowledge to which it has given birth must soon part company and become a great organized system by itself.

The simpler and earlier knowledge, which, it must not be forgotten, continues to be the "everyday" knowledge of mankind, is called the Non-formulated Knowledge; whereas the higher type is called the Formulated Knowledge.

Non-formulated and formulated Knowledge.

Thus non-formulated knowledge is the ordinary information gained by each one of us in the walks of daily life. It is the but-little-systematized knowledge which makes up the greater part of our acquaintance with the things about us. It is the knowledge that we pick up largely from chance experience and that lacks all definite organization. Non-formulated knowledge is, in short, the knowledge of everyday life.

On the other hand, formulated knowledge is the conscious answer to definite questions, which questions are in known relation to one another. In answering these questions it seeks to arrive at universally valid conclusions, and therefore it consciously looks for all the evidence bearing on such conclusions. Formulated knowledge we ordinarily speak of as science.

However, the reader should not forget that the formulation of knowledge has degrees, and that the marked difference between the two types of knowledge appears only after a considerable development has taken place; such, for example, as has been witnessed in the great civilizations, especially of Greece and the Modern World. The two types are but stages in the evolution of knowledge. The elements that in the one type come out far more clearly, though present in all knowledge, are the systematic character, the search for universal proof and for causal law. Consciously or unconsciously, the formulated knowledge has as its motto the unity of the universe, and this motto guides it in all its work; for various though its tasks may be it believes them to be parts of one greater task, — the knowledge of the universe as a whole and as a unity.

Pure and Applied Science.

As knowledge becomes differentiated into formulated and non-formulated knowledge, so in turn does formulated knowledge become further differentiated into pure and applied science.

Of course this division of knowledge into the theoretical and practical carries us back to the earliest stages; for, as the theory of natural selection would lead us to believe, knowledge must always have been applied by the individual to meet the demands of a complex environment to which reflex action and instinct but partially adapted him. Hence, we may conclude that just as knowledge of the most primitive kind tends ever to become an applied knowledge, so must the formulated knowledge also be prone to transform itself into an applied formulated knowledge. Still, back of both pure and applied knowledge, two distinct impulses of man can be clearly felt. We have, on the one hand, his ardent curiosity, and on the other, his pressing need to apply through his sagacity the knowledge that he has to the fulfilling of other desires of his nature. These two demands must lead in time to a marked differentiation between the two types of knowledge; and there will therefore arise two great sorts of formulated knowledge, — the pure and the applied.

Applied Science.

As we have seen, the difference between the two is contained in the distinction between the theoretical and the practical. Man finds that his theoretical science discloses to him natural processes and their laws. In the knowledge of these processes and laws, he discovers or seeks to discover a power that will enable him to adapt nature's forces to the fulfilling of man's needs. Thus the laws that botany and organic chemistry reveal are studied by the agriculturalist with the purpose of making them means to increase the productivity of the soil and to perfect the varieties of plants. In certain branches of medicine the knowledge gained by theoretical anatomy, physiology, physiological chemistry, and other sciences, is taken up and so adapted that it may form an art of healing by means of drugs or through the surgical operation. In the same way the engineer adapts the knowledge of chemistry, physics, and other theoretical sciences to gain rules to be used in construction, mining, and other similar pursuits. The aim is wholly practical.

Pure Science.

In pure science the aim is quite different. This department of knowledge arises solely from one desire on the part of man, — the longing to know the universe. Such knowledge is not to serve as a means to accomplish some external end, but is an end in itself.

Instead of the terms "pure" and "applied" science we may use the words "science," and "art" or "technology." Accordingly, we thus far find two uses of the word "science"; the former denotes formulated knowledge, the latter denotes pure or theoretical formulated knowledge.

Science and Philosophy.

But, as we have already seen, science, even in this narrower sense, is divided. Our desire to know the world leads to that interpretation which we call theoretical science. Yet over and above this there comes for science a new and further problem, namely, the interpretation of our interpretation, or the field of philosophy. Thus we shall divide pure science into two great fields; the one is given to the interpretation of the different parts of the world within and without us; the second is limited to the investigation of the problems presented us by this interpretation as such. So our new division gives us, first, the scientific interpretation of the world, and, secondly, the science of all interpretation, in short, science and philosophy.

Three meanings of the term Science.

At this point we should notice that we have used the word "science" in three senses: first, or in its broadest meaning, formulated knowledge; secondly, or in its narrower meaning, pure science as opposed to art; and finally, its narrowest meaning, science as opposed to philosophy. In our discussion we shall do well to use the term always in this last sense, that is, as distinguished from philosophy.

We have now the following classification of knowledge:—

- Knowledge.
  - Formulated Knowledge.
    - Pure Science.
      - Science (or the Special Sciences).
      - Philosophy.
    - Art (or Applied Science).
  - Non-formulated Knowledge.

CHAPTER LVI

THE DIVISION OF PHILOSOPHY[1]

What are the Disciplines of Philosophy?

FROM the previous chapter we have learned that philosophy is the science of knowledge as the interpreter of the world. We have now to inquire: What will be the special problems into which we can divide the general problem of interpretation? The divisions of philosophy given to the study of these special problems are called the Disciplines of Philosophy. Our new question thus becomes, What are the disciplines of philosophy?

The general and special, or formal and material disciplines.

To answer this question we must first search for a principle of division. In our study of philosophical problems we found some of far more general import than others. Thus the theory of knowledge dealt with more general problems than did metaphysics. The former tried to show us the nature of knowledge irrespective of the object; for it studied judgment, no matter whether the judgment were one of science or of morality. It studied judgment in its most general aspects. Thus we may define the theory of knowledge as that philosophical discipline that studies knowledge as such, knowledge irrespective of its content, or again, as some would word it, the formal nature of knowledge. We should then doubtless choose as our principle of division the generality of the knowledge under study; and seemingly this will divide off from the other disciplines the theory of knowledge, the most general discipline of philosophy.

This division adopted, the remaining disciplines of philosophy will deal with the material nature of knowledge as the interpreter of the world. They will take into consideration the various problems that knowledge solves, and study, not its most general aspects, but the additional elements present the moment some special problem is before it for solution. Thus we divide philosophy into its formal and material disciplines.

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[1] Cf. Külpe, Introduction to Philosophy, translated by Pillsbury and Titchener. London and New York, 1897. Section 3.

The general discipline is the Theory of Knowledge, not the Philosophy of Religion.

But at this point one objection may be raised against our division. Is not the philosophy of religion rather than the theory of knowledge the formal discipline? Is not religion the fundamental element of all interpretation, for the deepest of all principles is that of the will, since the will is the basis even of knowledge? We grant the premise and admit that the most general philosophical discipline must take account of this truth. But the objector has forgotten that an act of the will is one thing and that a judgment is a very different thing. In philosophy we are studying judgment or knowledge, and therefore we study the activity of the will only as something that can be transformed into a judgment. That is, we put the decisions of our will into the form of judgments, and as such we study them; hence the study of judgment as such precedes the study even of this special type. It is true that from one point of view all judgments involve an act of will or presuppose an ideal. This truth, however, belongs ultimately to the theory of knowledge to show, for it belongs to the study of judgment as such. Religion, however, is not as broad as all knowledge. All knowledge may involve a religious element, namely, the presupposition of the ideality of the real; still, the formulation of our ideals of the world, the working out of a religious faith, is not involved in all knowledge. It is, on the contrary, one department of knowledge beside others. It takes into consideration the peculiarities of its field; and the philosophy of religion is thus a material and not a formal discipline of philosophy.

The division of the material disciplines, and their definitions.

But how shall we divide the material disciplines? The question asks us: What are the ultimate ways in which the existent, or the Given, can be interpreted? There is no *a priori* method by which this can be answered. We have simply to ask: In how many ultimate ways does man actually interpret the facts? The answer so far offered is: In four, in Science, Religion, Morality, and Art. Each one of these types of interpretation is different from the others; and no one of them, as we have attempted to show, can be reduced to the other. Hence we shall have four special disciplines of philosophy: the Philosophy of Science, of Religion, of Morality, and of Art. These are called respectively, Metaphysics, the Philosophy of Religion, Theoretical Ethics, and Æsthetics.

Metaphysics is the science of reality as interpreted by science, or again, is *the science of the principles of science.* We mean by principles those fundamental truths about the world necessarily presupposed in interpreting it, or the axioms of our interpretation. As we have seen, to work out the character of an interpretation is but to show these principles as used by such an interpretation.

The philosophy of religion is the science of the principles of religion, or of the world as interpreted by religion.

Theoretical ethics is the science of the principles of morality, or of reality as interpreted by the moral consciousness.

Æsthetics is the science of the principles of art, or of reality as interpreted by the æsthetic consciousness.

In this chapter we are, of course, using the term "reality" in the sense of the existent, the Given, the factual, or the object of knowledge.

Logic.

But all this time nothing has been said about Logic. Is it too not a discipline of philosophy? We reply: Logic is a practical application of the theory of knowledge and of metaphysics. In short, logic is a methodology or applied philosophy. We thus get the following scheme: —

- Science.
  - Philosophy (in narrow sense), or Science of Knowledge.
    - Theoretical Philosophy.
      - Formal Philosophy, or Theory of Knowledge.
      - Material Philosophy.
        - Metaphysics.
        - Philosophy of Religion.
        - Theoretical Ethics.
        - Æsthetics.
    - Applied Philosophy, or Logic.
  - Science (in narrow sense).
    - Philosophy, or The Complete Unification of Knowledge.[1]
    - The Special Sciences.
      - The Pure Sciences.
      - The Applied Sciences.

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[1] Cf. Chapter I.

CHAPTER LVII

THE HISTORICAL DEVELOPMENT OF PHILOSOPHY[1]

The general law that differentiation accompanies evolution, holds also of philosophy.

THE familiar law of animal development tells us that as the individual or race evolves there is a differentiation of organs and an accompanying division of labor. In the lowest forms of life there is no differentiation of the digestive tract from the skin or general organ for receiving impressions from without the body. There is no organ for distributing nutrition as the arterial system of the vertebrate. There are no definite organs of sensation. The whole body seems able to perform the chief functions of life; whereas in the highly developed organism such is not the case. Here there is the digestive tract, the organ for distributing nutrition, the organs of excretion, the various organs of sense, and the central nervous system with its differentiations of function.

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[1] *Literature.*

The best general account of the development of philosophy from the point of view of its problems is that given by Windelband in his History of Philosophy, to which we have so often referred the reader. But before reading Windelband the student would do well to have read the other type of history, namely, that which treats of the successive thinkers and their systems. A better book for this purpose could hardly be found at present than Weber's History of Philosophy, to which also we have often referred. Cf. also A. K. Rogers, A Student's History of Philosophy. New York, 1901. For a shorter introduction to the historical development of philosophy the student is referred especially to Wundt's Einleitung in die Philosophie.

If the student desire a larger work on the history of modern philosophy than these, he is especially recommended (in spite of what seem to many its faults) to Kuno Fischer's Geschichte der neueren Philosophie, in nine vols. Jubiläumsausg. Heidelberg, 1897–1902; or, to mention a shorter work, Windelband, Geschichte der neueren Philosophie, 2 vols. 2d ed. 1899; or again, Höffding's History of Modern Philosophy. (The last especially for the latter half of the nineteenth century.)

For the history of ancient philosophy, cf. A. W. Benn, The Philosophy of Greece. London, 1898. E. Zeller, Grundriss d. Gesch. d. griech. Philosophie. 6te Aufl. 1902. [Translated (older edition) into English by Alleyne and Abbott. New York, Henry Holt and Co.]

For references to the history of special disciplines and problems, cf. the footnotes given with the chapters that treat of them.

Now, what is true in animal life is true, in a general way at least, the world over. Society develops, and, as it does so, differentiation of parts takes place. So, likewise, science. From a confused mass of thoughts it becomes a systematized or formulated knowledge. From a confused mixture of problems there arises a gradual differentiation of the problems, and with them a separation of the special sciences, each with its own field and problems. Lastly, what is true in science is true also in philosophy.

If we go back to the beginnings of knowledge, in the primitive days of civilization, we fail to find a formulated knowledge existing beside the non-formulated. But in time this separation does take place. It took place preëminently in Greek civilization, and from this beginning all further divisions of science have arisen. That is, to trace the historical development of philosophy we are forced to go back to the days of the sixth century before Christ, in Greece, and watch how there gradually arose a formulated knowledge, and how the different problems were, little by little, separated and carefully distinguished the one from the other. If we take the whole course of philosophy's development from those early days to our own, we shall find that the distinctions or differentiations pointed out in showing the relation of philosophy to the other sciences, represent in a general way this development. Thus, the knowledge of the infant and of the primitive man is an entirely non-formulated one, or one little unified and systematized. As knowledge progresses, a differentiation gradually takes place. Part of it becomes more and more unified, becomes formulated. Here we have the stage of development represented by early pre-Socratic science. This was called philosophy.

This differentiation has caused the term philosophy to undergo changes in meaning.

Now, philosophy being a very ancient word and having been applied to knowledge when knowledge was comparatively little differentiated, it has been constantly undergoing changes of meaning, as knowledge has become more and more differentiated. As a consequence, the use of the word in the history of science has been most various. As we have just seen, if we go back to the early Greeks, philosophy means formulated knowledge.

The next differentiation of knowledge was into theoretical and applied formulated knowledge; and here, too, the term "philosophy" changed its meaning. It now became the name given to theoretical science, or science in the broader sense. This meaning was retained by philosophy till our own times and is common even to-day.

Yet the field of knowledge has undergone further differentiation, and in turn knowledge has done so too, to accord with its field. This last differentiation belongs preëminently to the past two centuries. Men have come to distinguish between *a posteriori* and *a priori* knowledge, between the knowledge of the empirical laws of nature and that of the principles of knowledge. In this progress the two greatest names are those of David Hume and Immanuel Kant. Here, likewise, philosophy changed its meaning to accord with the new definition, and its field becomes finally that of the principles of knowledge. Thus we find in the course of history the word "philosophy" in a broadest, a broader, and a narrow sense; and even to-day its use is far from settled.

Also the more special law of mental evolution has played its part. This law is twofold.

Further, during the time when science was thus gradually differentiating into philosophy in the modern sense and into the spècial sciences, the philosophical problems that we have been studying were likewise gradually separating the one from the other and becoming the conscious possession of Europe's thinkers. Thus it came about that some of these problems, or classes of problems, are far more ancient than are others.

But besides the more general law of evolution, which has determined the course of philosophy's development, there has been also a second law at work, a law likewise of mental evolution. Thus, the term "mental evolution" has two meanings. There is the natural development of the mind in accordance with instincts implanted in the creature and arising spontaneously into full activity. That is, there are the laws of mental growth. Then there is a second set of laws that are determined solely by the mental content. These laws are purely logical.

(a) The law of *mental growth*.

To apply this to our special problem and to take up first the law of mental growth: according to psychology, the mind is endowed with instincts, and these instincts determine ultimately what will attract the creature's attention, will interest it, what things will be likely to be discriminated and to lead to reaction. Thus there are hundreds of things interesting to us that would not be noticed by a kitten, but let a rolling ball come within the field of its vision, off it springs to play. Again, how different our interests are to-day from what they were in early childhood! But why were childhood's interests what they were? Clearly, inherited tendencies must explain them. Or to put all in one brief statement, some things in this world are far more easily noticed, studied, and known than are others; and in the history of science, as elsewhere, we find that this law has played its part.

The objective before the subjective.

What things are most easily noticed by the child? Clearly the things without the mind, the material and moving things; whereas the mind, or rather its states, are not, as such, the objects of the child's thought or observation. These latter are known last, and, in fact, most men never know them accurately. Now, this same truth is illustrated in history; that is, the material world was first the object of study, and physical science preceded mental science.

The concrete before the abstract.

Then, again, the concrete, or the truth nearest to mere perception, is, other things being equal, the first to be discovered; whereas the abstract, or the truth involving much analysis and difficult to represent in the concrete, is known later. Thus it is that science and philosophy have become more and more abstract as they have developed.

(b) The law of *logical progress*. Conflicting theories lead to the discovery of more general and fundamental laws that bring about their reconciliation.

Consider next the logical law. When men first give explanations, these are of individual problems whose connection with one another is wholly unknown, or at least but little thought of. Later, the relationship between the problems and between their solutions becomes known; and then men gradually realize that the various answers conflict. These contradictions call at once for logical treatment, as the contradiction must be removed. Generally this means the denial of one answer and the affirmation of the other; but the probability is that when the so-called wrong answer was given it was not wholly unjustified. In short, the first way of settling a contradiction is apt to be unjust, giving one side too much approval and the other too little. Hence there follows a new logical movement. Both conflicting answers call for further analysis, for, perhaps, both are in part right and in part wrong. Yet such further analysis reveals more than this. The fact that the answers contradict proves a fundamental connection, for they could not contradict unless both were in part solutions of the same ultimate problem. That is, though they are answers to different questions, they both involve, or presuppose, a solution of a more truly fundamental or universal problem, a problem involved in both. Contradiction then forces man's mind logically to the solution of the more fundamental or universal problems involved in the many special problems. But just such universal problems approach nearest to philosophy or are philosophical. Their solution systematizes knowledge and reveals ultimately the necessary presuppositions, or premises, of knowledge. Hence, contradiction leads to the discovery of two kinds of philosophical truth: first, to the highest generalizations of science; and, secondly, to the discovery of the principles of knowledge.

Summary of the foregoing.

We have now before us the laws that have governed the historical development of philosophy. As time has gone on, as civilization has advanced, the problems of science have become more and more differentiated. A general and more or less confused formulated knowledge has become divided into theoretical and practical science. The theoretical science has become divided into philosophy and the special sciences. Philosophy has become divided, first, into the science of knowledge, or the principles of interpretation, and, secondly, into the systematization, or unification, of the knowledge furnished by the special sciences. Further, within philosophy in the narrow sense, there has been likewise a greater differentiation of problems. Single problems of two hundred years ago have to-day become several problems; and, similarly, as we go farther and farther back, the many problems of one age are found united in a more confused problem of an earlier age. Again, the objective has come to be known before the subjective, the world without before the world within, the philosophy of nature before that of mind. Finally, the more concrete problem has arisen before the more abstract, metaphysics before the theory of knowledge.

Still these statements must not mislead us. Though it is true that in evolution one part comes before another, low differentiation before high differentiation; yet, in another sense, it is true that all are present from the beginning. The simplest forms of life have to assimilate food, have to excrete waste products, have to do, though in a cruder way, the functionings of the highly developed organism. So, also, in the history of science, and especially of philosophy, the new is continuous with the old, for amid all the changes and increased complexity of the later age, it may be still identified with its beginnings in ancient times.[1]

A more concrete statement of the development of philosophy.

But to pass from generalities to the more concrete problem before us, what has been the historical development of philosophy? Let us examine briefly the course that it has taken.

First came Metaphysics, and in it first the search for the universal and permanent.

The earliest problems were metaphysical, and of these first came that problem which we had before us in beginning our study, — the search for some universal type of being whence all forms spring and to which all return. Thales tells us that water is this general type, Anaximander says "the infinite atmosphere," and Anaximenes, "the generative principle of things, air, or breath." All objects are not different but may be viewed as different manifestations of one type. There is thus begun the search for the universal and permanent characteristics of the material world back of and included in the infinite manifold of the concrete. To know the world becomes now no longer knowing individuals but knowing the universal characteristics and laws to be found in the individual things.

Next came the problem of change and its solution in the Atomic Theory.

But the moment we seek for the permanent and universal in things we are called upon to explain how, in the light of this permanent, things have come to be what they are. We have the problem of world-genesis.

At first the world-process, the genesis of things, was readily assumed as a matter of course; but man very soon discovered in it the presence of a universal problem. Things generate, become, change; but what is "becoming," and how is it possible? The solution of this problem includes many of the most brilliant theories of Greek thought, among which the atomic theory is the most famous. According to this theory all forms and changes of the individual objects, all quality, can be reduced to purely quantitative changes, to differences in the shape and grouping of permanent entities, or atoms. Thus arose the distinction between the primary and the secondary qualities, and the doctrine that the secondary qualities have no existence outside of the perceiving mind. The truly real, or objectively existent, is matter with its primary, or quantitative, characteristics.

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[1] The student is especially urged to read the first chapter in Caird's Critical Philosophy of Kant, Vol. I, "The Idea of Criticism."

The arising of the Problem of Knowledge.

But all this time another problem had been working its way more and more to the front, — the problem of the character and the validity of knowledge. The real world, according to the Eleatics, Heraclitus, and the Atomists, is a very different world from what you and I perceive. Parmenides taught that the world of perception is delusion. The real world is changeless. The atomists maintained that the secondary qualities are unreal. The real world is one of quantity. If either be right, true knowledge cannot be given us through the senses but only through the reason. The world of the senses is then a world of appearance, a phenomenal world; and the world of reason is the world of reality, the noumenal world.

Here we have the beginnings of the theory of knowledge and of many important problems within it: such as the beginning of rationalism and of realism, the belief in a world transcending the empirical world.

The first solutions of these problems were very crude and soon brought upon themselves the natural consequence, skepticism; but later they led to the reconstruction of science on deeper and more lasting principles.

The representatives of skepticism were the Sophists. If knowledge is to be, knowledge must be objective and universal; but knowledge is neither. The only knowledge is that of the individual man at the instant when he makes his judgment. The only knowledge is the opinion of the moment and in the moment.

Logical and progressive as such a skepticism was in outgrowing the crude rationalism and dogmatism of the day, it could not be lasting because it meant the suicide of all the elements of man's life. It was the self-confessed impossibility of knowledge. It was the destruction of the moral conscience and of the order and rights of society. Hence a new period had soon to follow and to reconstruct on deeper principles.

The golden age of Greek Philosophy.

This new period marked the highest point of Greek thought. It was the period of Socrates, of Plato, and of Aristotle. Ethics became clearly differentiated from the remainder of science, and science itself reached its highest development.

Modern Philosophy.

To pass over the intervening centuries to the days of the Renascence and thus to the birth of recent science, modern thought, as ancient thought, begins in physical and cosmological speculation and discovery. It is the time of Copernicus, Galileo, Kepler, Bruno, Descartes, Huyghens. It is a time, above all, of natural philosophy and of ontology and cosmology. As far as there is a philosophy of mind, true to the spirit of the day, it is materialistic.

At first it is a Natural Philosophy.

Later comes the Theory of Knowledge, and the development of its problems.

Ethics is reborn; but, though the method of gaining new truth is uppermost in mind, the theory of knowledge as such remains undeveloped till Locke. With Locke, Berkeley, and Hume the more general problems of knowledge become the centres of interest; and, finally, with Kant modern philosophy takes on its present form. Philosophy becomes differentiated from the special sciences; it becomes the study of knowledge as the interpreter of reality. Further, Kant realized, as Hume did not, the necessity of its having in part an *a priori* character. With him, too, the various disciplines of philosophy become more highly differentiated from each other.

Yet one great change was to take place after Kant — that is, the belief in the existence of a transcendent world was to be discarded. Realism was to pass entirely into idealism; and philosophy was to be brought into closer touch with the world of experience. Before that day the belief in a transcendent world was a doctrine ever tending to draw the philosopher away from the world of facts. This need of bringing philosophy closer to life and to experience was clearly felt in the positivistic movement of our century. Crude and one-sided as was that movement it had this important element, it kept close to experience, and it gave to empirical science her rights.

Evolution.

Another great doctrine, old though it is in its origin, belongs in its development especially to our past century, the doctrine of evolution. Hegel looking at it as a logical development, Darwin as a process to be empirically studied, and Spencer as one to be deduced from mechanical principles, all give elements that must enter into its final form..

Science and Religion.

Then, too, this century saw other great differentiations. Science and religion have been differentiated more and more, so that books which fifty years ago would have included semi-religious interpretations of nature, of life, and of mind, are now kept true to the canons of science and free from such foreign problems.

Ethics.

Evolution, too, has made tremendous changes in our moral views. Theoretical ethics to-day is limited to a few purely philosophical problems; and these answered, the remaining problems of morality are handed over to inductive science.

Psychology and Philosophy.

Finally, one great advance in thought, taking decades to become understood, teaches that genesis and validity are two quite distinct problems. This doctrine, more than anything else, will keep philosophy's problems carefully differentiated from those of the special sciences; and, above all, it will lead to the final separation of epistemology and metaphysics from psychology. The older problems of innate ideas and intuitionalism in science, religion, and morality are now anachronisms, as are also all other tendencies to substitute the problem of psychological genesis for that of philosophical validity.

CHAPTER LVIII

THE METHOD OF PHILOSOPHY

IT does not fall within the scope of this book to discuss methodology at any length. However, we do wish to call attention to its existence and to give its main problem.

Philosophy is charged with being merely reflective, but its problem and work force it to be so.

It has often been charged against philosophy that she seeks to weave out of our consciousness her contribution to truth and not to search for that truth in accordance with the laborious but fruitful methods of natural science.

Before discussing such a charge, let us at once agree upon one important premise. We have passed beyond the day when pain is thought to be something desirable and good in and for itself. We still believe in pain, but in pain only as a means to an end. This being granted, why should we complain against any science that it does not deliberately make things hard for itself and go to unnecessary and useless trouble? Of course, philosophy pursues its work in a different way from natural science. But what of it? Are those ways part of a ritual of value in and for themselves? Our problems do not admit of solution either by founding and running laboratories or by journeys into the wilderness or deep-sea dredging. Philosophy, as we have shown, gets its results by logical analysis. Analysis of what? Why, for one thing, analysis of the results and doctrines of natural science. The natural scientist does in part the laboratory work for us. We work over his results. We find out by analysis what his premises and principles are and see whether or not they contradict. If they do, we tell him so. Then we hear in reply: "O you philosophers, how can you know *a priori* what is true and what is not? Why do you not go to the facts?" Well, what is one to say? We do not claim to know anything here except what the scientist himself has taught us, for here we are his pupils. All we have done is to ask him to be consistent and to tell him when he is not. You ask: "Consistent with whom?" "Consistent with us?" No, indeed, consistent with himself. If he refuses to be so, why, of course, we refuse to accept his doctrine or else try ourselves to make it consistent.

In short, all the work of philosophy is reflective. It is an analysis of the results of human searching after truth and, in general, of all human activity. It searches for inconsistencies and tries to remove them. It finds fault, not for the sake of finding fault, but in order to regain consistency. Naturally, then, the philosopher's work is chiefly in his library. It is there through the reports made to him by the scientists and observers themselves in their books and treatises that he gets the information on which he bases his conclusions. Ultimately, then, *he is just as much an empiricist at heart as is the most enthusiastic naturalist.* He is forced to get his facts from so very many branches of human activity that he could not possibly be a direct observer in more than an infinitesimal part of the field covered by his conclusions. Of course, being a man and leading a man's life, he is brought face to face with facts, and doubtless here and there makes his conclusions directly on the basis of the facts. But for his main work this is a physical impossibility. The philosopher must then depend upon the results of others to furnish him the material upon which he works.

The illegitimate use of the *a priori* method is as bad

His work is a logical analysis, and a logical analysis must needs be done by reflection. His methods and principles, too, must needs be obtained by reflection. But this latter is true of all science. However, it is true

philosophy as it is bad science.

especially of the philosopher's work just because he deals with high generalizations and abstractions. His methods and principles are less *a posteriori*, and, therefore, are farther removed from the concrete facts. Still, all this does not make his work essentially different from that of science, for, ultimately, back of all truth lie the three principles of knowledge or of consistency.

If the philosopher does his work properly, if he is truly consistent, science has nothing to fear from him; for science, too, is a seeker after truth, and truth must be consistent with itself. Of course, philosophy, like all other human pursuits, depends upon the ability of those who work in it; and the more *a priori* one's work, the more liability there is of getting the *a priori* habit and extending this way of solving questions into fields where such a method has no business to exist. Here the scientist can rightly complain. But the injury is as much against philosophy as it is against science. That is, the true philosopher must complain against the wrong use of an *a priori* method, as much as the scientist; and what is more, if the scientist read carefully the history of philosophy, he will find plenty of evidence to show that most of the complaining has, in fact, been done by philosophers, especially by the philosophers of England.

CHAPTER LIX

THE MEANING AND VALUE OF PHILOSOPHY

The Meaning and Value of Philosophy

HAVING now become familiar with the problems that philosophy tries to solve, we must ask the question: What is the meaning and the value of such a science? Why should we, as rational beings, try to discover what constitutes the nature and the presuppositions of our knowledge of the world and of our own lives as part of the world.

I. The value of philosophy in doing away with the problem presented by General Skepticism.

Above all, we should feel called to do so because the validity or possibility of our knowledge, as such, has been called in question. It has been questioned by great schools of thinkers in the past and is liable to be doubted again by men in the future, for each one of us in the course of his mental growth goes normally through a period of precisely such doubt. In the development of a great civilization, and also in the growth of an active mind, there come naturally the dark days of skepticism; and this skepticism is too earnest and too serious, and often too well justified, to be treated with anything but respect and equal seriousness.

The three periods of intellectual growth; Dogmatism, Skepticism, Criticism.

If we study the history of civilization and the mental development of the individual man, we can mark out three chief periods in the course of growth. There is first a period when tradition is accepted with all the confidence, but at the same time with all the lack of caution, proverbially true of childhood and early youth. This is the dogmatic period. It naturally ends in errors and opposing theories, and thus throws doubt on the mind's ability even to the extent of denying the possibility of any knowledge at all. Hence the second period is that of skepticism. But skepticism itself is an impossible stopping-place. Its effect is to discourage every attempt at progress and even every endeavor to take a serious part in life's battle. Man can never rest content in such a living death, and hence he must try to escape the doubt whence it comes. Therefore, we have, following doubt, a period of new beginnings, a period of reconstruction upon a deeper basis, or, as it is called, a period of criticism.

The Idea of Criticism.

In his work on Kant's Critical Philosophy Professor Caird gives us an admirable chapter on the Idea of Criticism. In it he writes the following description of the three periods: —

"'Dogmatism,' Kant declares, 'is the positive or dogmatic procedure of reason without previous criticism of its own faculty;' that is, it is a system which is produced in the direct effort to understand and interpret the world — the effort of a mind which is as yet troubled by no scruples as to its own competence, or as to the efficiency of the methods and the principles it uses. Such a mind, indeed, is generally unconscious of any method or principle whatever. It is too busy with its object to attend to itself. An early philosopher is described by Aristotle as looking up at the expanse of heaven, and declaring that 'all is one.' So by a direct effort of intuitive thought, the mind which as yet is troubled with no doubts as to the possibility of knowledge, seizes upon some general principle that seems to be as wide as the universe itself and uses it to explain, or to explain away, all appearances. Such immediate, unhesitating action of the intelligence does not of necessity fail of a good result. Nay, it is to such action that man's first insight into the nature of things is always due. But it invariably, in the first instance at least, overshoots its mark. Lighting up one aspect of things with the vividness of intuitive presentment, it leaves the other aspects in the shade. Grasping a principle of limited range, it applies that principle fearlessly to objects which it cannot explain, and which, therefore, it only serves to distort. . . .

"The direct dogmatic or uncritical use of the understanding is sure at some point to find itself checked and thwarted by the nature of things. For the simple principles which first present themselves for the explanation of the world are necessarily imperfect and one-sided. If they explain phenomena, it is only within a limited range, and when they are extended beyond that range they come into contradiction with facts and even with themselves. The category which forms a sufficient guide so long as it is applied to the investigation of one definite part of the world or one definite phase of reality, is found inadequate when it is employed as a universal principle. Hence, one-sidedness here calls forth an opposite one-sidedness there, dogmatism is met by an opposite dogmatism, and in the interminable controversy which arises between the champions of apparently opposed but really complementary ideas, each finds that the sharp dialectic which he directs against his opponent is retorted upon himself. Besides, even apart from its being assailed in this way from without, a half-truth is its own Nemesis. A one-sided dogmatism has the opposite dogmatism latent in itself. It needs only to be developed and it destroys itself. A part setting itself up as a whole, an abstraction claiming to be a complete reality, is in contradiction even with itself; and this contradiction in the end must be fatal to it. . . .

"The first effect of the failure of Dogmatism is naturally the rise of scepticism. The conflict of opposite dogmas produces a sense of hopelessness, and even, it may be, a conviction that 'whatever can be asserted may with equal reason be denied.' Such scepticism may be of a deeper or of a shallower nature. It may be only that superficial doubt which is the result of observing many differences of opinion, and listening to much argument on either side. It may be the sophistic consciousness that a plausible case may be made out for anything or against anything. Or, finally, it may be the deeper scepticism of a reasoned despair of knowledge, arising out of the consciousness that every dogmatism has latent in it an opposite dogmatism, and that the contradiction which it encounters from its opponent is only the recoil of its own logic upon itself. . . .

"If the first work of scepticism is to carry us beyond opposite dogmatisms, the last work is to disclose the basis of truth on which after all it, as well as they, must rest. But when it takes this last work in hand, it has ceased in the proper sense to be scepticism, and has become criticism.

"This last statement may be illustrated by a remarkable expression of Kant. 'Scepticism,' he says, 'would have been a useful regress, if it had gone back over the ground traversed by the dogmatists to the point where their wanderings began.' Criticism is a deeper kind of scepticism, which does thus go back to the beginnings of our thought — or at least to a point logically prior to that at which the opposite dogmatic systems diverge from each other — and so gets into the straight road again. In other words, its aim is to bring the controversy to an end by detecting its sources and presuppositions. For in every controversy there must be some ground common to the controversialists, little as they may recognize it themselves. If this were not so, assertion and denial, attack and defence, would be equally unmeaning. And the value of scepticism is just this that, while using the arguments of each of the parties to refute the other, it suggests that the question at issue has certain presuppositions without the examination of which it cannot be decided. . . .

"Criticism, then, in the highest sense of the word, essentially involves an effort to get beyond the sphere in which a controversy is carried on, and to throw new light upon it from a point of view which is above that of either of the disputants, though it is also a point of view which both of the disputants tacitly acknowledge. That is a true criticism which lifts a subject into the region of principle, and so frees it from the mere attack and rejoinder of ordinary controversy."[1]

In the history of civilization philosophy does the work of criticism.

It is this need to escape doubt, this need of criticism, that philosophy tries to meet. Thus the first great task of philosophy is to do away with doubt, not by ignoring doubt as undeserving of respect, but by satisfying the needs of the mind in which the doubt arises. Skepticism is due to the discovery of a contradiction within our interpretation of reality, a contradiction no deeper truth known at the time is able to reconcile. Philosophy is the search for this deeper or more universal truth that unknown to us lies behind, or is presupposed in, the narrower truths. Hence we may say that the first great value of philosophy is its inherent ability to do away with general skepticism.

II. The value of Philosophy to Science.

But philosophy has other meanings too. *Philosophy has a meaning and value for science.* It is the ideal of science to work out the story of the universe in a rational system. Yet how can science ever attain to this ideal, or even approach it, in any given stage of her development, unless she be conscious of her principles and the elements involved in her work? But not to mention now this practical meaning of philosophy to science, we should state first the true scientific value. As rational scientists, that is, as true scientists, we must be interested in the presuppositions, the methods, the limits, and the aims of our science. We must be interested in the relation of our work to the whole work of the human mind as the interpreter of reality. If, as true scientists, we should search every corner of the universe to gain those facts which alone make our work of interpretation a possibility and give it trustworthiness, are we not also called upon to look within the very work of interpretation itself, to determine its character? How irrational to seek for perfection in one part of our work

(*a*) The theoretical interest of science in her principles.

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[1] Caird, Critical Philosophy of Kant, Vol. I, pp. 2-8. No one interested in philosophy should fail to read Professor Caird's whole chapter.

and to ignore another part wholly! Surely the true scientific spirit demands that science's presuppositions, her methods, her character, and her relation to all other problems of life, be directly known and consciously taught. Otherwise we are in peril of being utterly false, yes, traitors, to science herself.

(b) The practical interest.

But there is a practical interest for science as well as a theoretical. Whether we like it or not, you and I cannot interpret any part of this world without making presuppositions. It is a logical impossibility to draw a conclusion, to make an inference, without premises. Therefore, whether science wills it or not, science has to begin somewhere with premises and has to assume these premises.

The danger of false premises.

What follows? We must do this either consciously or blindly. We must assume premises that are either true or false. Now the chances are that premises assumed blindly are, to some degree at least, false.

If our ultimate premises are false, we are liable, and history shows over and over again that we are more than liable, to carry these errors throughout the whole course of our reasoning and to hinder indefinitely the success and progress of science. There is nothing concerning which scientists are more enthusiastic and more uncompromising in their demands than their methods of research and the general canons of science itself. Yet whence come these methods and whence the canons? Somebody must have thought them out. They are not facts to be discovered but principles to be obtained by logical analysis. Now that very logical analysis is philosophy. Again, they are premises, necessary premises, necessary because science must have them or cease her work. These premises must be obtained by thought, must be clearly understood, must be harmonized the one with the other, must be tested in every way. This statement no scientist will for a moment do less than heartily uphold. Then why should he protest when he hears that the names of the sciences that do this work are metaphysics and theory of knowledge? We do not mean that he is called upon to accept the views of any particular school of philosophy, for as a rational man he ought to deal critically with every doctrine. But we do mean that science should be critical with herself, and that the moment that she is so the value of philosophical reflection is admitted.

Each age and each man inherits many fundamental premises that should be critically studied.

There is a further practical value to the scientist in the study of philosophy. It is a psychological truth that knowledge never begins at the logical beginning and that your knowledge and mine began by jumping *in medias res.* It is a law from which no man can escape, that each one of us is born into a given community, at a given time, during the prevalence of certain views of the world and of life. To our dying day we shall never wholly escape these accidents of birth. We can alter them somewhat, and, if we are geniuses, a great deal even, but that is all.

Now these accidents of birth and of early training have a tremendous influence upon all our later work in life. Are we then to let them go by unexamined? Ought we not, for the practical effect it will have upon our work, to examine these accidents and their influence most critically? Doubtless in our particular field of specialization we shall do so anyway; but should we do less in the more general field of life? These more general prejudices exert a great influence on all that we do and therefore on our special calling. The history of science and the biography of every great man of science shows clearly that this statement is true. The science of an age is the child of the age. The individual scientist may be beyond his day and generation in one or two matters, yet the greatest is saturated with the thought and life of his country and of his age. No sane historian or biographer would neglect this truth or fail to estimate for his reader its significance in the special problem under investigation.

Every treatise is based consciously or unconsciously on general presuppositions that should be critically examined.

But the case can be put even stronger. No scientific treatise or set of views can be written in total disregard of the larger problems of science; for every such work presupposes, consciously or unconsciously, a general view of the world and of life. Now if we demand of the specialist the most critical and careful study of the evidence and methods by which he gets his results, why should we tolerate a total indifference on his part toward the general view of the world and of life presupposed in his work? Clearly we should not; and sooner or later, if the history of science is to be trusted, we will not. Sooner or later, if his work last, it will have to withstand not only the criticism of its more evident results but also the criticism of its deeper presuppositions. The forces that move here are mightier than any man or set of men; and sooner or later the flood of a better and truer view of things will come and will sweep away our false prejudices and wrong presuppositions.

Do you ask for any proof of all this? One case belongs to our very nineteenth century, of which we are so proud, and worse than that, in one of the greatest and noblest of our special sciences, namely, biology. The whole doctrine of the special creation of species so widely held and taught up to recent days, as history counts time, was a barbarous piece of metaphysics. It denied the whole canon of causation, the very canon on which science is built; and yet Europe's greatest scientists maintained it with all the ardor of the devotee. The law of causation declares that empirical facts alone are the conditions or causes of empirical facts. Science, lacking a knowledge of such empirical conditions, sought for a cause in a transcendent world, a world totally beyond experience. Did ever metaphysics worse than this? But what would happen to the scientist to-day that dared return to the older view? Yet how many of us, how, in fact, do all of us, hold to views just as contradictory to the true spirit and canons of science without dreaming any more than did that older generation of the absurdities of which we are guilty?

Finally, science needs to know better her aims and purpose.

But there are even worse absurdities to be noted. We, as scientists, start out to do something. To do what? "Why, to know some field of facts or solve certain problems concerning these facts." But what are facts? What is it to know facts? What is it to explain? What is it to solve a problem? What is a problem anyway? The scientist that · dares neglect these ultimate questions is a man that starts out to do something, he knows not what. Could anything be more absurd? Must not science, to be science, to take her own work seriously, know what she herself is, know what she is trying to do, become conscious of her real goal, and know when she is wandering from her true path? Surely such knowledge, if it do nothing else, will save no end of time and utterly useless controversy. But to save time is to advance science farther in the days allotted us to live. To save time is to hand on to those who come after a more precious scientific heritage. Philosophy, then, is not merely of theoretical interest to science but of decidedly practical value.

III. The Meaning of Philosophy in the controversy between Science on the one hand and Religion and Morality on the other.

But there is a third meaning and value of philosophy. Since the thirteenth century a controversy has been taking place between science and the leaders of religion. We have already discussed its character and significance in our critique of religion. We showed that the struggle has right on both sides. Science need not feel that she has an easy victory to win over religion. She need not feel that religion is an anachronism that will in time die out of itself. Surely there is very little evidence to-day of any such thing happening; for science cannot even boast that she has taught her lessons so well to the world that superstition and the liability to be deceived by the first man with a ready tongue and a good supply of high-sounding nonsense have been removed from the midst of us. To-day we see thousands and tens of thousands desert the flag of science and follow the charlatan, the inventor of new fads and religions, all as though we were in the ages thought long passed away instead of in the glorious twentieth century. Science can call them fools, and perhaps they are fools; but in this world calling names has done very little good, and science should know it by this time. You and I cannot depend upon men being rational; but you and I do depend and have to depend upon men. We cannot ignore them and say, if they will be fools let them be so. You and I cannot withdraw from the social and political world and have our own little kingdom by ourselves, where rationality will be synonymous with citizenship and sainthood. We are part of the world and will have to remain so.

Now there is one truth about our brother man that you can ignore, if you will, but that you cannot deny. He is religious. He demands an answer to life's problems which science will never give him; and what is more, he will get what he wants, be it bad or good. Therefore it belongs to our leaders to help see that what he gets is good. What, then, must we do? One thing surely — we must seek for a reconciliation between two foes that can never overthrow one another, two foes that have a right to be, and will ever be, as long as man is man. The controversy between the two for man's own welfare must stop, and each must grant the other its true jurisdiction. Each must do its work in harmony and sympathy with the other, for the two are not by right enemies, they are brothers; and the warfare between them is a crying sin, a sin against our civilization, and a sin against everything a true man holds dear. Shame, then, on those who are unwilling to have the questions at issue submitted to a just, a thorough, and a critical court of arbitration. "What is that court?" Our answer is philosophy. "Is that court just?" You yourself can be a member of it if you will. All you have to do is to become yourself truly a student of the problem. "Is that court critical?" That depends upon its members, and you or any other man or woman may be a member if you will. Of course, like any other branch of science, it needs the devotion of a lifetime to master it. Yet there is no reason why we should not become acquainted with it, why it should not be the common field or forum, where all specialists can meet and try to understand one another and one another's life. We can become well enough acquainted with it, even though we are specialists in other fields, to know fairly well whom we may trust if we have to depend upon another's authority.

IV. The Meaning of Philosophy to the Individual.

But there is still a fourth and final meaning and value to be found in philosophy, that is, its meaning and value to the individual man.

Our lives an interpretation of reality.

Our lives in theory and in practice are an interpretation of reality. What we know and what we do and what we feel make up our life. To know more perfectly and rationally, to will more consistently, to feel more harmoniously, is, after all, nothing less than living a fuller and richer life and is nothing less than the highest self-realization. If the noblest selfhood be the true goal of life, then we have, each one of us, the task of bringing complete consistency or harmony more and more into each and every part of our lives and, above all, into life as a whole.

The need to know the principles of our lives.

In this respect, we live in a day famous for its superficiality. We are all too busy to lead large and full lives, for each has to be a specialist and to ignore the rest of life to a far too great extent. Specialization may make us expert in one field, yet let us not forget that it may make us superficial and even wholly ignorant in many other fields. Now those other fields belong just as truly to life as does that in which we are masters. In commerce, in industrial life, in professional life, in science, and in art, and in religion too, there is everywhere the same danger, over-specialization. What is the specialty good for if life is to be merely a specialty? Who is to enjoy the product of our labor if each one is to live unto himself? Is the only good to be obtained from our modern civilization and high social development simply this,—to fix things so that other people will let us alone, so that each may do what he wills in perfect peace so long as he does not interfere with his neighbor? If this is our modern ideal of life, then its logical outcome is the life of the hermit.

V. The Meaning of Philosophy to Society.

No, we are members one of another, and no man can live merely unto himself. There is no room in this world for the mere specialist. Such a man is a slave, a mere piece of property, and is not truly a member of society. He is of use to us as are our cattle, but he himself fails to share in the larger life to which his labor contributes, except, perhaps, to gain from it, along with our horses, his food and shelter. No one of us really can live such a life. We are too human. No one can really be satisfied with such an existence. We have too many good instincts implanted in us which must be satisfied, or life would be a failure. The truest, the happiest, the only satisfying life, is that noblest selfhood that seeks self-realization in the service of all and in the sharing with all. That larger life must then be our ideal. If so, we must gain its principles. We must share with fellow-man those universal truths on which we one and all are building. Nothing less than these, nothing less deep and fundamental, can ever form the permanent basis of universal friendship.

From yet another point of view our lives need this sharing in others' lives. You and I do not work our best alone, for we need encouragement, we need to share our success, we need the fellow-feeling, the sympathy, the friendship, that add so much to our ability to excel. The individual that leads the hermit life, or the nation that is composed merely of these individuals, lacks those deep aspirations and convictions which make the greatest lives and the greatest movements in history. Woe betide the nation lacking these ideals, for every great nation must be united and have great common aspirations. To lose them means the old age and coming decadence of national life. But truly to have convictions and to have them in common, needs a removal of skepticism, needs a critical groundwork, needs a forum of mental life, where we can meet and understand one another and gain convictions widely accepted and of more than a moment's duration.

Now the deeper we go, and the stronger our ultimate foundations are, the surer shall we build, and the longer will our structure last. But this very work of gaining such a foundation is the task of philosophy. To change our figure, philosophy meets life at each and every turning of the way. Go where you will, think what you will, feel what you will, do what you will, you never will get beyond the need that philosophy tries to meet. Her work is as universal as man, is as catholic as life.

But philosophy is not life, it is only a guide to life.

Yet a word of warning and an admission must be added to what we have said. Philosophy is not life, philosophy is only a means to a higher and better life. No one should expect more from it, no one should make it his all. The great work of this world is not done by philosophy but by the individual acts of each individual life, for life is not made up of universal principles but of particular acts. These particular acts, be they the planting of corn, the running of a locomotive, the presiding at a directors' meeting, the finding of a new drug, the inventing of a new machine, the discovery of a new fact or truth, the bringing into the world of a new life, the training of the young, the caring for the sick and needy, the uplifting of man's ideals and aspirations, the giving of new hope, and the lessening of sorrow, — these alone are life, and these are not philosophy. They need her guidance at every turning of the way; but they, and they alone are life. Thus has philosophy, like everything else, a meaning and a value only in terms of its contribution to life. Life and its self-realization alone are of value in and for themselves.

APPENDIX I

A SCHEME OF THE HISTORY OF PHILOSOPHY[1]

A. THE PHILOSOPHY OF THE GREEKS.

- I. **The Cosmological Period** (the 6th and 5th centuries B.C.).
  - The Ionian School.
    - Thales (about 600 B.C.).
    - Anaximander (a little later).
    - Anaximenes (about 560–500 B.C.).
  - The Pythagoreans.
  - The Eleatic School.
    - Parmenides (wrote about 470 B.C.).
  - Heraclitus (about 536–470 B.C.).
  - The Atomists.
- II. **The Anthropological Period** (5th century B.C.).
  - The Sophists.
  - Socrates (469–399).
- III. **The Systematic Period.**
  - Democritus (about 460–360).
  - Plato (427–347).
  - Aristotle (384–322).

B. THE HELLENISTIC-ROMAN PHILOSOPHY.

- I. **The Ethical Period** (the four centuries before Christ).
  - The Stoics.
  - The Epicureans.
  - The Skeptics.
- II. **The Religious Period** (first century A.D. to the sixth).
  - Neo-Pythagoreanism.
  - Neo-Platonism.
    - Plotinus (204–269).
  - The Church Fathers.
    - Augustine (354–430).

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[1] Following mostly Windelband, History of Philosophy.

C. THE PHILOSOPHY OF THE MIDDLE AGES.

I. Platonic Scholasticism (to the 13th century).
- Anselm (1033–1109).
- Abelard (1079–1142).

II. Aristotelian Scholasticism (from the 12th century).
- Peripateticism.
  - Thomas Aquinas (1225–1274).
- Platonic-Augustinian Tendency.
  - Duns Scotus (about 1270–1308).
- Nominalism.
  - William of Occam (died 1347).

D. THE PHILOSOPHY OF THE RENASCENCE.

I. The Humanistic Period.

II. The Natural Science Period.
- Kepler (1561–1630).
- Galileo (1564–1642).
- Francis Bacon (1561–1626).
- Thomas Hobbes (1588–1679)
- Descartes (1596–1650).
- The Occasionalists.
- Spinoza (1632–1677).
- Leibniz (1646–1716).

E. THE PHILOSOPHY OF THE ENLIGHTENMENT

I. In England.
- Locke (1632–1704).
- Berkeley (1685–1753).
- Hume (1711–1776).

II. The Scottish School.
- Reid (1710–1796).

III. In France.
- Voltaire (1694–1778).
- Lamettrie (1709–1751).
- Condillac (1715–1780).
- Diderot (1713–1784).
- Rousseau (1712–1778).

IV. In Germany.
- Leibniz (also in this period).
- Wolff (1679–1754).

F. GERMAN PHILOSOPHY.

Kant (1724–1804).
Fichte (1762–1814).
Schelling (1775–1854).
Hegel (1770–1831).
Schleiermacher (1768–1834).
Herbart (1776–1841).
Schopenhauer (1788–1860).

G. THE PHILOSOPHY OF THE NINETEENTH CENTURY.

I. In England and Scotland.

Sir William Hamilton (1788–1856).
John Stuart Mill (1806–1873).
Herbert Spencer (1820——).

II. In France.

Comte (1798–1857).

III. In Germany.

Lotze (1817–1881).
Fechner (1801–1887).
Von Hartmann (1842——).
Lange (1828–1875).

APPENDIX II

A BIBLIOGRAPHY OF BOOKS ESPECIALLY REFERRED TO FOR PARALLEL READING

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Höffding, History of Modern Philosophy. Vol. II.
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James, Psychology (Briefer Course).
James, The Principles of Psychology. 2 vols.
James, The Varieties of Religious Experience.
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Locke, Essay on the Human Understanding.
Lotze, Outlines of Æsthetics.
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Pearson, The Grammar of Science.
Royce, The Spirit of Modern Philosophy.
Sidgwick, Outlines of the History of Ethics.
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Stallo, Concepts and Theories of Modern Physics.
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Ward, Naturalism and Agnosticism. 2 vols.
Watson, An Outline of Philosophy.
Watson, Selections from Kant.
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[1] I should like to add to the list of reference books: Cornelius, Einleitung in die Philosophie. Leipzig, 1903. Riehl, A., Philosophie der Gegenwart. Leipzig, 1903.

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  its unity, 264 f., 268 f.
  the spontaneity of its changes, 203 ff.
  See The Given, Realism, Idealism, The Principles of Reality, and Voluntarism.

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